HEWLETT® PACKARD

HP LaserJet 5Si Family Printers Service Manual

Service Manual

HP LaserJet 5Si (C3166A)
HP LaserJet 5Si MX (C3167A)
HP LaserJet 5Si NX (C3950A)
HP LaserJet 5Si HM (C3124A)
HP LaserJet 5Si Mopier (C4076A/C4077A/C4176A)

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WARNING

Electrical Shock Hazard

To avoid electrical shock, use only supplied power cords and connect only to properly grounded (3-hole) wall outlets.

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Conventions

This manual uses the following conventions:

The names of major printer parts and assemblies are Capitalized.

Color is used to emphasize items which are important to the material under discussion.

Bold is used for emphasis, particularly in situations where *italic* type would be confusing.

Italic type is used to indicate related documents or emphasis.

Note Notes contain important information set off from the text.

Caution Caution messages alert you to the possibility of damage to equipment or loss of data.

WARNING! Warning messages alert you to the possibility of personal injury.

Chapter Descriptions

1 Product Information

Contains printer features and product overview, tray capacities and sizes, media specifications, service approach, and how to get technical assistance.

2 Site Requirements

Contains space and environmental requirements.

3 Operating Overview

Contains details about control panel menus, restoring factory defaults, and resetting and testing the printer.

4 Maintenance and Adjustments

Contains cleaning and preventive maintenance information, and adjustment procedures for Tray 2, Tray 3, and Tray 4.

5 Functional Overview

Contains block diagrams and basic theory of operation for the printer systems, paper paths, and paper handling accessories.

6 Removal and Replacement

Contains step-by-step procedures for replacing field replaceable units (FRUs) in the printer, 2000-Sheet Input Unit, Multi-Bin Mailbox, and the Mailbox with Stapler.

7 Troubleshooting

Contains a preliminary troubleshooting table, a table with descriptions and recommended actions for all control panel messages, image defect samples, and troubleshooting checks and tools.

8 Parts and Diagrams

Contains exploded view drawings and part number listings for all replaceable parts in the printer, 2000-Sheet Input Unit, Multi-Bin Mailbox, and Mailbox with Stapler.

A Parts Index

Contains two replaceable parts tables: one sorted alphabetically by part name, and one sorted numerically by part number. Both tables are cross referenced to the diagrams in Chapter 8.

B I\O Information

Contains basic cabling and configuration information for connecting the printer to supported networks.

C Regulatory Information

Contains required safety and compliance statements.

Subject Index

Contains an alphabetical, cross referenced listing of information found in the main body of the manual.

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1

Product Information

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Printer Features

Table 1-1 Printer Features

Features	LaserJet 5Si (C3166A)	LaserJet 5Si MX (C3167A)	LaserJet 5Si Mopier (C4076A/C4077A/ C4176A)
Print Speed **Duplex Speed**	24 ppm letter or A4 13 ppm ledger (11x17) or A3 15 ppm legal or B4 9.5 ppm letter or A4 6.5 ppm ledger or A3 7.5 ppm legal or B4	24 ppm letter or A4 13 ppm ledger (11x17) or A3 15 ppm legal or B4 9.5 ppm letter or A4 6.5 ppm ledger or A3 7.5 ppm legal or B4	24 ppm letter or A4 13 ppm ledger (11x17) or A3 15 ppm legal or B4 9.5 ppm letter or A4 6.5 ppm ledger or A3 7.5 ppm legal or B4
Text & Graphics Resolution	600 dpi; plus Resolution Enhancement technology (REt)	600 dpi; plus Resolution Enhancement technology (REt)	600 dpi; plus Resolution Enhancement technology (REt)
Printer Language(s) **Standard** **Optional**	Enhanced PCL 5 Adobe PostScript Level 2	Enhanced PCL 5 Adobe PostScript Level 2 None	Enhanced PCL 5 Adobe PostScript Level 2 None
Duty Cycle (Monthly Usage)	Up to 100,000 images	Up to 100,000 images	Up to 100,000 images
Memory: **Standard**[1] **Optional (maximum)**[2]	4 Mbyte 132 Mbyte total	12 Mbyte 76 Mbyte total[3]	12 Mbyte 76 Mbyte total[3]
Internal Typefaces	45 PCL	45 PCL, 35 PostScript	45 PCL, 35 PostScript
Cartridge Slots	0	0	0
Standard Interfaces	IEEE 1284 ECP Parallel	IEEE 1284 ECP Parallel JetDirect MIO	IEEE 1284 ECP Parallel JetDirect MIO
Power Control	PowerSave Mode	PowerSave Mode	PowerSave Mode
Control Panel	5 Keys, LCD Display (2-line, 20 characters per line)	5 Keys, LCD Display (2-line, 20 characters per line)	5 Keys, LCD Display (2-line, 20 characters per line)
EconoMode (toner saving)	Yes	Yes	Yes

1 Printer memory is optimized with Memory Enhancement technology (MEt).

2 SIMMS available for use include 2, 4, 8, 16, and 32 Mbtye Modules. See “Accessories & Supplies” in Chapter 8 for option product numbers. (32 Mbyte modules are compatible, but not available from Hewlett-Packard.)

3 If the 8 Mbyte module is removed and replaced with a 32 Mbyte module, the maximum can be 100 Mbytes.

Paper Capacities and Sizes

Tray 1

Table 1-2 Tray 1 Media Guidelines

Media Type (Feed Orientation)	Dimensions	Weight	Capacity
Maximum paper size	11.7 x 17.7 in (297 x 450 mm)	Single-sided: 16-lb bond to 53-lb bond (110-lb index); 60 to 199 g/m^2) Two-sided: 16 to 28-lb bond (60 to 105 g/m^2)	100 sheets of 20-lb bond paper (Do not load to more than a maximum height of 10 mm—the paperfill mark.)
Minimum paper size	3.9 x 7.5 in (99 x 191 mm)		
Paper, Letter (Landscape)	8.5 x 11 in (216 x 279 mm)		
Paper, ISO A4 (Landscape)	8.3 x 11.7 in (210 x 297 mm)		
Paper, Executive (Portrait)	7.25 x 10.5 in (184 x 267 mm)		
Paper, Legal (Portrait)	8.5 x 14 in (216 x 356 mm)		
Paper, Ledger (Portrait)	11 x 17 in (279 x 432 mm)		
Paper, ISO A3 (Portrait)	11.7 x 16.5 in (297 x 420 mm)		
Paper, JIS B5 (Landscape)	7.16 x 10.12 in (182 x 257 mm)		
Paper, JIS B4 (Portrait)	10.12 x 14.33 in (257 x 364 mm)		
Transparency	See minimum and maximum paper sizes listed above	0.0039 - 0.0045 in. thick (0.099 to 0.114 mm)	Limit to paperfill mark on paper width guides
Label		0.005 - 0.007 in. thick (0.127 to 0.178 mm)	
Envelope, Commercial #10 (Com 10) (Portrait)	4.1 x 9.5 in (105 x 241 mm)	Should not exceed 28-lb bond (105 g/m^2)	Up to 10 at one time
Envelope, C5 (Portrait)	6.4 x 9.0 in (136 x 231 mm)		
Envelope, DL (Portrait)	4.3 x 8.7 in (109 x 218 mm)		
Envelope, Monarch and B5 (Portrait)	3.9 x 7.5 in (99 x 191 mm)		

Table 1-2 Tray 1 Media Guidelines (continued)

Media Type (Feed Orientation)	Dimensions	Weight	Capacity
Envelope, B5 (Portrait)	6.93 x 9.84 in (176 x 250 mm)	Should not exceed 28-lb bond (105 g/m^2)	Up to 10 at one time
Post Card, 2X	5.83 x 7.87 in (149 x 200 mm)	Should not exceed 110-lb index (199 g/m^2)	

Tray 2

Table 1-3 Tray 2 Media Guidelines

Media Type (Feed Orientation)	Dimensions	Weight	Capacity
Paper, Letter (Landscape)	8.5 x 11 in (216 x 279 mm)	Single-sided: 16 to 28-lb (60 to 105 g/m^2)	500 sheets of 20-lb bond paper
Paper, ISO A4 (Landscape)	8.3 x 11.7 in (210 x 297 mm)	Two-sided: 16 to 28-lb bond (60 to 105 g/m^2)	(letter and A4 for Trays 2,3, and 4)
Paper, Legal (Portrait)	8.5 x 14 in (216 x 356 mm)		
Paper, JIS B4 (Portrait)	10.12 x 14.33 in (257 x 364 mm)		

Note The HP LaserJet 5Si HM (C3124A) supports 16-53 lb bond media from all trays. However, performance in Tray 2 may not be as good with heavier media due to the sharp turn in the paper path. For best performance, Tray 1, 3, or optional Tray 4 are recommended.

Caution When using 16 lb bond media, **only** use fusing mode=STD PAPER.

Tray 3

Table 1-4 Tray 3 Media Guidelines

Media Type (Feed Orientation)	Dimensions	Weight	Capacity
Paper, Letter (Landscape)	8.5 x 11 in (216 x 279 mm)	Single-sided: 16 to 28-lb (60 to 105 g/m^2) Two-sided: 16 to 28-lb bond (60 to 105 g/m^2)	500 sheets of 20-lb bond paper (letter and A4 for Trays 2,3, and 4)
Paper, ISO A4 (Landscape)	8.3 x 11.7 in (210 x 297 mm)		
Paper, Legal (Portrait)	8.5 x 14 in (216 x 356 mm)		
Paper, JIS B4 (Portrait)	10.12 x 14.33 in (257 x 364 mm)		
Paper, Ledger (Portrait)	11 x 17 in (279 x 432 mm)		
Paper, ISO A3 (Portrait)	11.7 x 16.5 in (297 x 420 mm)		

Tray 4 (2000 Sheet Input Unit)

Table 1-5 Tray 4 Media Guidelines

Media Type (Feed Orientation)	Dimensions	Weight	Capacity
Paper, Letter (Landscape)	8.5 x 11 in (216 x 279 mm)	Single-sided: 16 to 28-lb (60 to 105 g/m^2) Two-sided: 16 to 28-lb bond (60 to 105 g/m^2)	2000 sheets of 20-lb bond paper (letter and A4 for Trays 2,3, and 4)
Paper, ISO A4 (Landscape)	8.3 x 11.7 in (210 x 297 mm)		
Paper, Legal (Portrait)	8.5 x 14 in (216 x 356 mm)		
Paper, JIS B4 (Portrait)	10.12 x 14.33 in (257 x 364 mm)		
Paper, Ledger (Portrait)	11 x 17 in (279 x 432 mm)		
Paper, ISO A3 (Portrait)	11.7 x 16.5 in (297 x 420 mm)		

Identification

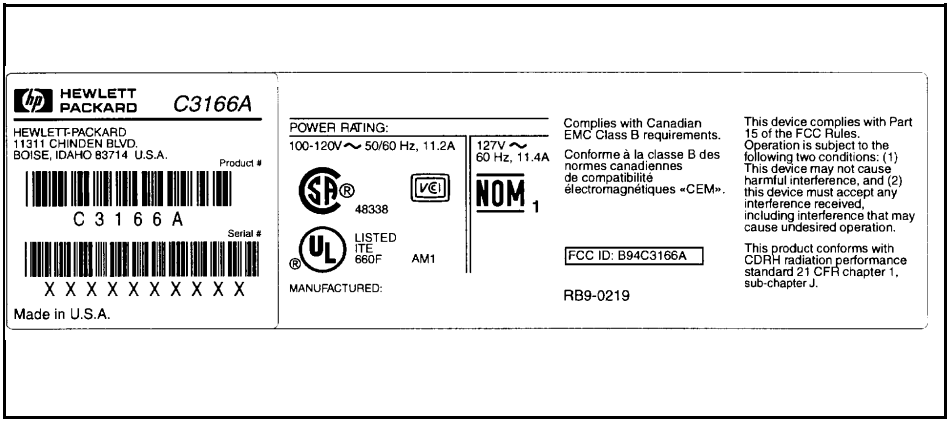
Model and Serial Numbers

The model number and serial numbers are listed on identification labels located on the rear of the printer. The model number is alphanumeric, such as C3166A for the HP LaserJet 5Si printer.

The serial number contains information about the Country of Origin, the Revision Level, the Production Code, and production number of the printer.

The rear labels also contain power rating and regulatory information as shown in Figure 1-1.

Figure 1-1


HEWLETT PACKARD
C3166A
HEWLETT-PACKARD
11311 CHINDEN BLVD.
BOISE, IDAHO 83714 U.S.A.
Product #
C 3 1 6 6 A
Serial #
X X X X X X X X X X
Made in U.S.A.
POWER RATING:
100-120V ~ 50/60 Hz, 11.2A
127V ~
60 Hz, 11.4A
48338
LISTED
ITE
660F
AM1
MANUFACTURED:
NOM 1
Complies with Canadian EMC Class B requirements.
Conforme à la classe B des normes canadiennes de compatibilité électromagnétiques «CEM».
FCC ID: B94C3166A
RB9-0219
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
This product conforms with CDRH radiation performance standard 21 CFR chapter 1, sub-chapter J.

Sample Model and Serial Number Label

The identification labels for the 2000 Sheet High Capacity Input Tray are located on the back panel, directly below the identification labels on the printer.

To locate the identification labels for the 8 bin Multi-Bin Mailbox and 5 bin Multi-Bin Mailbox with Stapler, detach the unit from the printer. The identification labels are located on the bottom right of the front side (side that attaches to printer).

Specifications

This section contains information on physical and electrical characteristics of the printer. For information on the printer site and environmental requirements (such as operating temperature and humidity, ventilation, etc.) see Chapter 2.

Table 1-6 Printer Dimensions

Description	Dimension
Height	21.3 in. (541 mm)
Height of 2000 Sheet Input Unit (Tray 4)	18.9 in. (480 mm)
Width printer only with Multi-Bin Mailbox/Mailbox With Stapler attached[1]	 46.75 in. (1187 mm) 66.25 in. (1683 mm)
Width of Multi-Bin Mailbox/Mailbox With Stapler	19.5 in. (495 mm)
Depth (body)	20.5 in. (520 mm)
Weight (without toner cartridge and with paper trays)	99 lbs. (45 kg)
Toner cartridge weight[2] Full: Empty:	 106 oz (3000 g) 80.5 oz (2200 g)

1 Add 5.5 inches (140 mm) for the Multi-Bin Mailbox/Mailbox With Stapler. Refer to Chapter 2 for more details.

2 Some quantity of toner will reside in the waste toner area of a toner cartridge when the toner supply is exhausted. Therefore toner cartridge weight may be an unreliable indication of remaining toner supply.

Table 1-7 Electrical Specifications

Volts	Freq	Amps*	Watts (typical)
Printer			
120 Vac ± 10% 100 Vac ± 10%	50/60 Hz ± 2 Hz 50/60 Hz ± 2 Hz	13.5 @ 120v	printing = 500 standby = 135 PowerSave Mode LaserJet 5Si =21 LaserJet 5Si MX=24
220 Vac ± 10% 240Vac ± 10%	50 Hz ± 2 Hz 50 Hz ± 2 Hz	6.0 @ 220v	printing = 500 standby = 135 PowerSave Mode LaserJet 5Si =21 LaserJet 5Si MX=24
2000-Sheet Input Unit (Tray 4)			
120 Vac ± 10%	50/60 Hz ± 2 Hz	0.5 maximum 0.3 average	45 Watts Maximum
240 Vac ± 10%	50/60 Hz ± 2 Hz	0.3 maximum 0.2 average	45 Watts Maximum
Multi-Bin Mailbox/Mailbox With Stapler			
100-240 Vac	50/60 Hz ± 2 Hz	0.5 @ 120v 0.25 @ 240v	45 Watts Maximum

*Operating current requirements.

Table 1-8 Acoustic Emissions

Operation position (per ISO 9296)		Printer (stand alone)	Printer System*
Printing	L_{PA} dB(A)	54 db	56 db
Standby	L_{PA} dB(A)	42 db	42 db
Bystander 1m (per ISO 9296)			
Printing	L_{PA} dB(A)	50 db	55 db
Standby	L_{PA} dB(A)	38 db	42 db
Sound Power (per ISO 9296)			
Printing	L_{WAD}	6.6 bels (A)	7.1 bels (A)
Standby	L_{WAD}	5.5 bels (A)	5.5 bels (A)

* Printer System includes the 2000-Sheet Input Unit, Multi-Bin Mailbox/Mailbox With Stapler, Duplex Unit, and Envelope Feeder.

Media Selection Guidelines

Note

More detailed specifications are in the *HP LaserJet 5Si and 5Si MX User's Guide*, and the *HP LaserJet Printer Family Paper Specification Guide.* *(See "Related Documentation and Training Media" later in this chapter.)*

Paper

To achieve the best possible print quality and avoid paper jams, follow these guidelines for selecting paper:

- Use only copier grade paper that meets all specifications in the paper specification guide. Avoid paper with embossed lettering, perforations, or texture that is too smooth or too rough.
- Colored paper should be of the same high quality as white photocopy paper. The pigments must withstand the fusing temperature of 392° F (200° C) (215° C for HP LaserJet 5Si Heavy Media printers) for 0.1 second without deterioration. Do not use paper with a colored coating that was added after the paper was produced.
- Pre-printed forms must be printed with non-flammable, heat-resistant inks that do not melt, vaporize, or release hazardous emissions when subjected to the fusing temperature of 392° F (200° C) (215° C for HP LaserJet 5Si Heavy Media printers) for 0.1 second.
- A small sample of a new print media should be tested before purchasing large quantities.

Envelopes

Caution

To prevent severe printer damage, do not use envelopes that have windows, clasps, snaps, or synthetic materials.

Print Envelopes to the Face-Up Bin only

Envelopes can be printed from Tray 1 and from the optional Envelope Feeder. Choose envelopes that are well-constructed. They should lay flat and be sharply creased. They should not be wrinkled, nicked, or otherwise damaged. Envelope adhesive must be compatible with the heat and pressure of the fusing process.

Adhesive Labels

Use the following guidelines when selecting labels:

Caution

Tray 1 is required for printing adhesive labels.

Print labels to the Face-Up Bin only.

This printer does not support use of labels with any exposed spaces.

Do not attempt to print on label sheets after any of the labels have been removed from the sheet. Damage to the printer may result.

- Labels must be arranged on the carrier sheet so that there are no exposed spaces on the sheet. Using label stock with spaces between rows or columns of labels can often result in labels peeling off during printing, causing serious jamming and possible printer damage.
- The top sheet (printing surface) must be of copier quality and provide good toner adhesion.
- The carrier sheet (backing sheet) must be compatible with the temperatures and pressure of the fusing process, and must be coated for easy release of the top sheet.
- The adhesive must be stable at the 392° F (200° C) temperatures encountered for 0.1 second in the fusing process, and must not produce emissions that exceed exposure levels or threshold limits established by OSHA and other safety agencies. Adhesives must not come into direct contact with any part of the printer.

A wide selection of suitable labels may be ordered through Hewlett-Packard. Available sizes are listed in the *HP LaserJet Printer Family Paper Specification Guide.*

Transparencies

Caution

Tray 1 (Multi Purpose) is required for printing transparencies.

Print transparencies to the Face-Up Bin only.

Overhead transparencies used in HP LaserJet printers must be able to withstand the 392° F (200° C) temperatures encountered in the printer's fusing process for 0.1 second. Suitable transparency film is available through Hewlett-Packard. Refer to the *HP LaserJet Printer Family Paper Specification Guide* for details.

Storing Print Media

Follow these guidelines when stacking and storing print media:

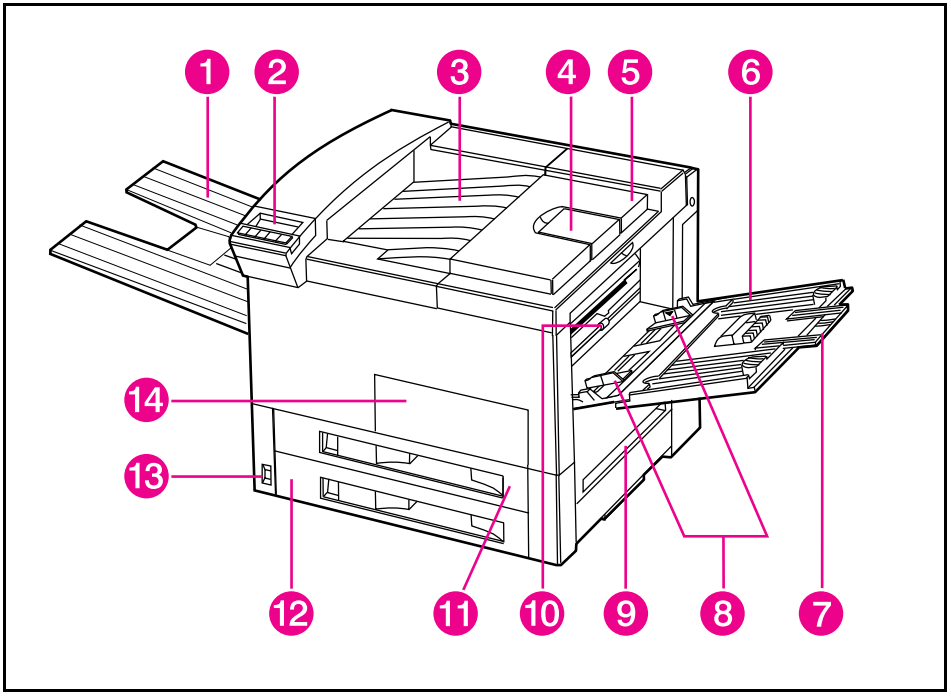
- Store paper in its ream wrapper until ready to use.
- Re-wrap partially used packages of media before storing.
- Stack each carton upright and squarely on top of the other.
- Store envelopes in a protective box to avoid damaging the envelope edges.
- Keep stored media away from temperature and humidity extremes.
- DO NOT store cartons or reams directly on the floor where they will absorb a higher moisture content. Instead, place cartons on a pallet or on shelves.
- DO NOT store individual reams in a manner that causes them to curl or warp along the edges.
- DO NOT stack more than six cartons on top of each other.
- DO NOT place anything on top of media, regardless of whether the paper is packaged or unpackaged.
- DO NOT store printed documents in vinyl folders (which may contain plasticizers) or expose the documents to petroleum based solvents.

Shipping Print Media

When shipping print media through different environments, plastic wrap all cartons on the shipping pallet. When shipping media across bodies of water, wrap individual cartons as well. Packaging must protect the media from physical damage.

External View of HP LaserJet 5Si/5Si MX/NX and Mopier Engine

Figure 1-2

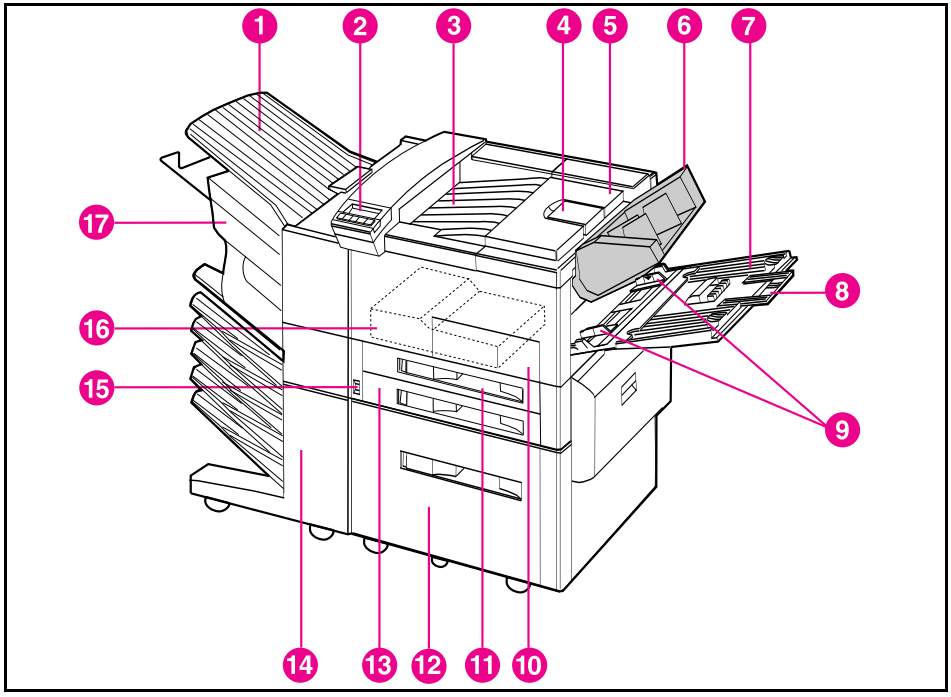


HP LaserJet 5Si/5Si MX/NX and Mopier Engine - Front and Right Side View with Tray 1 Open

1. Face-Up Bin
2. Control Panel
3. Face-Down Bin
4. Adjustable Paper Stop
5. Toner Cartridge Access Door
6. Tray 1
7. Tray 1 Extensions
8. Tray 1 Paper Width Guides
9. Input Slot for 2000-Sheet Input (Tray 4)
10. Tray 1 Pickup Roller
11. Tray 2
12. Tray 3
13. ON/OFF Switch
14. Front Access Door

External View of HP LaserJet 5Si Mopier

Figure 1-3

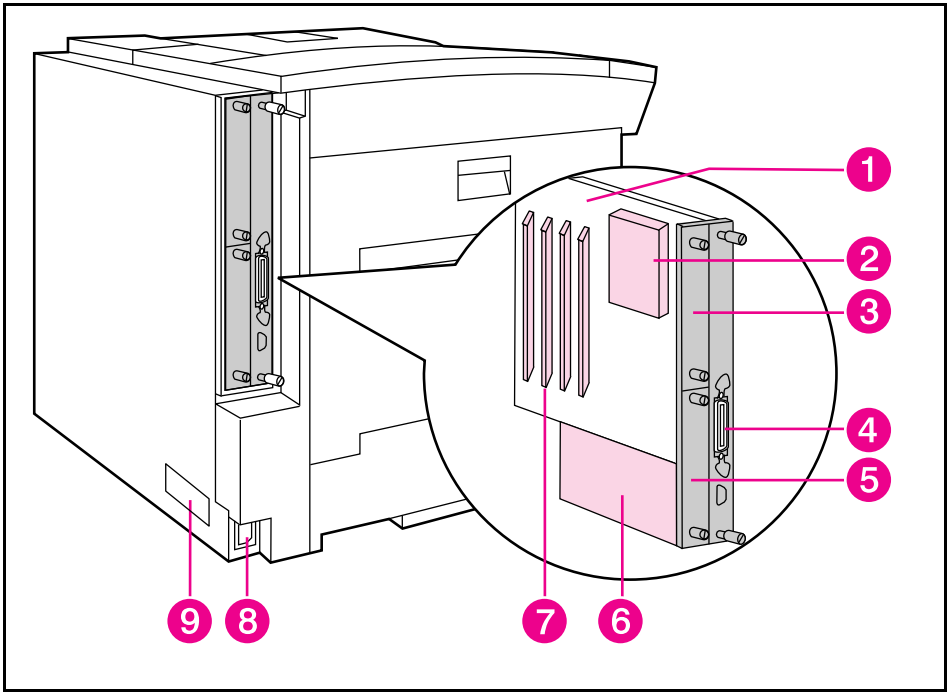


HP LaserJet 5Si Mopier - Front and Right Side View with Tray 1 Open

1 Left Output Bin
2 Control Panel
3 Top Output Bin
4 Adjustable paper stop
5 Top cover
6 Envelope Feeder (optional)
7 Tray 1 (multi-purpose)
8 Tray 1 extensions
9 Tray 1 paper width guides
10 Front door
11 Tray 2
12 HP 2000-Sheet Input Tray (Tray 4)
13 Tray 3
14 Mailbox with Stapler
15 On/Off switch
16 Duplexing Unit (internal)
17 Stapler Unit

Formatter Assemblies

Figure 1-4



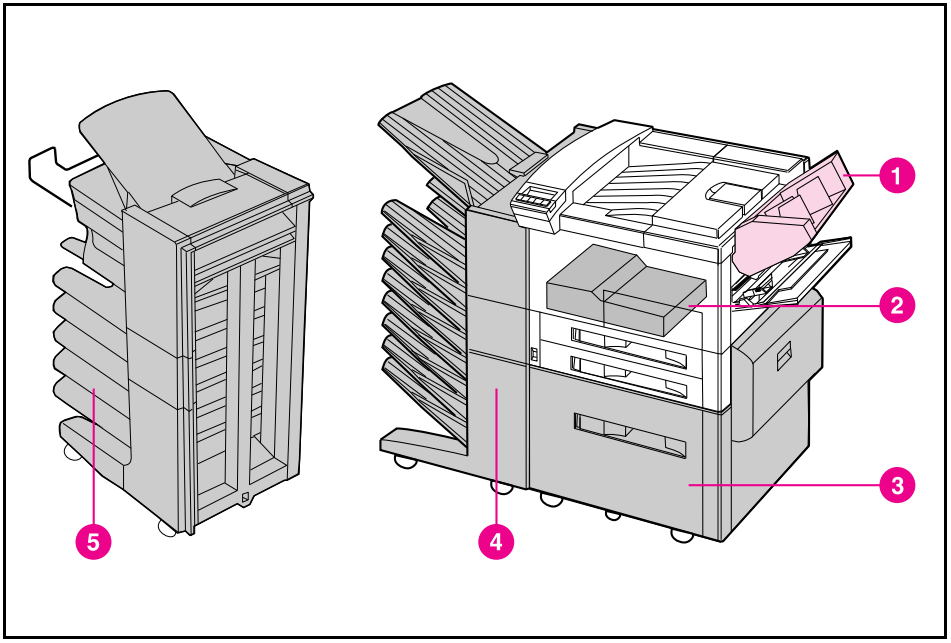
Rear and Left Side View

1. Formatter Printed Circuit Assembly
2. Hard Disk Accessory Location (optional for LJ 5Si/5Si MX/5Si NX and standard for LJ 5Si Mopier and Mopier Engine)
3. MIO Card 1 Location
4. Parallel IEEE 1284 Interface Port
5. MIO Card 2 Location
6. External Paper Handling Controller Board Location
7. SIMM Slots
8. AC Power Connector
9. Model and Serial Number Label

Accessories and Options

The accessories and optional equipment for the LaserJet 5Si, 5Si MX, and 5Si NX printers are shown in Figure 1-5 and described in Table 1-9. For the LaserJet 5Si Mopier (C4076A), all the accessories in Figure 1-4 and in Table 1-9 are standard features, except for the Envelope Feeder and the Multi-Bin Mailbox (replaced with the Mailbox with Stapler).

Figure 1-5



HP LaserJet 5Si/5Si MX/NX Optional Paper Handling Accessories

1 Envelope Feeder
2 Duplex Unit
3 HP 2000-Sheet Input Unit (Tray 4)
4 Multi-Bin Mailbox (provides mailbox, job separation, and job stacking for the LaserJet 5Si family
5 Mailbox with Stapler (provides mailbox, job separation, job stacking, and stapling for the LaserJet 5Si family

Table 1-9 Accessories and Options

Accessory/Option	Part/Product Number	Description
Toner Cartridge	C3909A	Replacement toner cartridge.
Stapler Cartridges	C3772A	3-pack of staple cartridges. Each cartridge contains 2000 staples and should last about two months, depending on use.
Memory upgrades	2 MByte—C3131A 4 MByte—C3132A 8 MByte—C3133A 16 MByte—C3146A	Upgrade to a total of 132 MBytes of memory in the HP LaserJet 5Si or to 76 MBytes in the HP LaserJet 5Si MX. Third-party 32 MByte memory SIMMs are also available.
*Adobe's PostScript Level 2 printer language	C3169A C3169-69001	Add Adobe's PostScript Level 2 language by installing this SIMM in your printer. (Additional memory is recommended.) This language is standard in the HP LaserJet 5Si MX printer.
*Duplex Unit	C3762A	Provides the printer with two-sided printing capability.
HM Duplex Unit	C4178A	Heavy media duplexer. Only compatible with HP LaserJet 5Si HM (C3124A).
Envelope Feeder	C3765A	Attaches to printer above Tray 1; holds up to 100 envelopes. Supports Commercial #10, C5, DL, Monarch, ISO B5.
*Tray 4 (HP 2000-Sheet Input Unit)	C3763A/ R77-1002-000CN (for LJ 5Si & 5Si MX only) C3773A (for LJ 5Si Mopier only)	Adjustable for Letter, Legal, Ledger, ISO A4, ISO A3, JIS B4. (Includes C3768A External Paper Handling PCA.)
Multi-Bin Mailbox	C3764A C3764-69100	Features eight bins holding 250 sheets of paper each. Supports the same paper sizes as the printer. Envelopes, labels, and transparencies must be sent to the Face-Up Bin.
*Mailbox with Stapler	C3774A	Features five bins holding 250 sheets of paper each. Supports the same paper sizes as the printer. Provides stapling of jobs for both letter and A4 paper sizes. Envelopes, labels, and transparencies must be sent to the Face-Up Bin.
*Tray 2 (500-Sheet Input)	C2931A/ R77-0004-000CN	Holds 500 sheets; adjustable for Letter, Legal, ISO A4, JISB4.
*Tray 3 (500-Sheet Input)	C2930A/ R77-0003-000CN	Holds 500 sheets; adjustable for Letter, Legal, Ledger, ISO A4, ISO A3, JIS B4.
HP parallel printer cable (3 meter)	C2951A	HP-recommended IEEE-1284 Cable with A and B connectors

Table 1-9 Accessories and Options (continued)

Accessory/Option	Part/Product Number	Description
Modular I/O and Network Cards	J2550A	HP JetDirect Multi-protocol Network Card with Ethernet/IEEE802.3 10 Base-T
	J2552A	HP JetDirect Multi-protocol Network Card with LocalTalk, DIN-8 and Ethernet/IEEE802.3 10Base-T, BNC (standard in LJ5Si MX)
	J2555A	HP JetDirect Multi-protocol Network Card with Token Ring (DB9 and RJ45)
UNIX Interface Software	J2374B	HP JetDirect interface software for HP-UX systems
	J2375B	HP JetDirect interface software for SunOS and Solaris UNIX systems
*Printer Hard Disk	C2965A	420 MByte disk drive for both PCL and PostScript
Printer Stand	C2975A	18.9 in (480 mm) tall for the HP LaserJet 5Si/5Si MX printers
110V Maintenance Kit	C3971A C3971-69001	Contains replacement Fusing Assembly, Transfer Roller, and Feed and Separation Rollers for 110V printers.
220V Maintenance Kit	C3972A C3972-69001	Contains replacement Fusing Assembly, Transfer Roller, and Feed and Separation Rollers for 220V printers.
External Paper Handling Controller Board	C3768A	Controller board for optional paper handling input and output devices. Not needed for the Envelope Feeder or Duplex Unit.

* Standard feature in the LJ 5Si Mopier (C4076A)

Hard Disk

The Printer Hard Disk accessory is optional for the HP LaserJet 5Si, 5Si MX, and 5Si NX printers. The hard disk is a standard feature of the HP LaserJet 5Si Mopier and Mopier engine. It can be used to permanently store downloaded fonts and forms in the printer. Unlike the standard printer memory, permanently downloaded items remain in the printer even when the printer is powered off.

Fonts downloaded to the hard disk are available to all users of the printer.

Macintosh users can use the HP LaserJet Utility, and Windows users can use the HP printer driver to download fonts. The Printer Hard Disk can also be write-protected through software for additional security. Refer to the on line help associated with your HP software for more information.

If you are a PostScript language programmer, refer to Adobe's *PostScript Language Reference Manual* for information about downloading forms and patterns to the disk. (For the Macintosh environment, refer to the on line help in the HP LaserJet Utility Guide included with the HP LaserJet Utility software.) For the Windows environment, refer to your HP Windows driver on line help.

Determining Memory Requirements

The amount of memory you need depends on the types of documents your print. With the PCL printer language, your HP LaserJet 5Si printer can print most text and graphics at 300 or 600 dpi without additional memory.

Add memory to your printer if you:

- commonly print complex graphics.
- Use many downloaded fonts.
- Print complex documents.
- Use advanced functions (such as I/O Buffering and Resource Saving).

For the HP LaserJet 5Si printer, you can add up to 128 MBytes of memory for a total of 132 MBytes. If you have the HP LaserJet 5Si MX printer or 5Si Mopier, you can add up to 64 MBytes of additional memory for a total of 76 MBytes.

Table 1-10 presents the amount of memory required for the most common print jobs performed with the HP LaserJet 5Si/5Si MX/5Si NX/Mopier using 600-dpi printing.

Table 1-10 Minimum Memory Requirements

Print Job	Paper Size	PCL Minimum Memory Requirements	PostScript Minimum Memory Requirements
single-sided printing	Letter, A4, Legal	4 MBytes	9 Mbytes
	11 in x 17 in, A3	4 MBytes	12 Mbytes
two-sided printing	Letter, A4	4 MBytes	12 Mbytes
	Legal	4 MBytes	14 Mbytes
	11 in x 17 in, A3	12 MBytes	22 Mbytes

Service Approach

Repair of the printer normally begins with a three-step process:

- Step 1: Isolate the problem to the major system, i.e. the host computer, the network and/or server, or the printer system.
- Step 2: Determine if the problem is located in the accessories or in the printer engine.
- Step 3: Troubleshoot the problem using the procedures in Chapter 7.

Once a faulty part is located, repair is usually accomplished by assembly level replacement of Field Replaceable Units (FRUs). Some mechanical assemblies may be repaired at the subassembly level. Replacement of components on the printed circuit assemblies is not supported by Hewlett-Packard.

Ordering Parts

Field replaceable part numbers are found in Chapter 8 of this manual. Replacement parts may be ordered from HP's Support Materials Organization (SMO), or Support Materials Europe (SME).

Phone numbers for the various sources are:

- SMO (Support Materials Organization)
  1-800-227-8164 (U.S. Only)
- SME (Support Materials Europe)
  (49 7031) 142253
- HP's Distribution Center (HPD)
  1-303-353-7650

Exchange Program

HP offers remanufactured assemblies for some parts. These are identified in Chapter 8 and can be ordered through Parts Direct Ordering (PDO), Support Materials Organization (SMO), or Support Materials Europe (SME).

Consumables

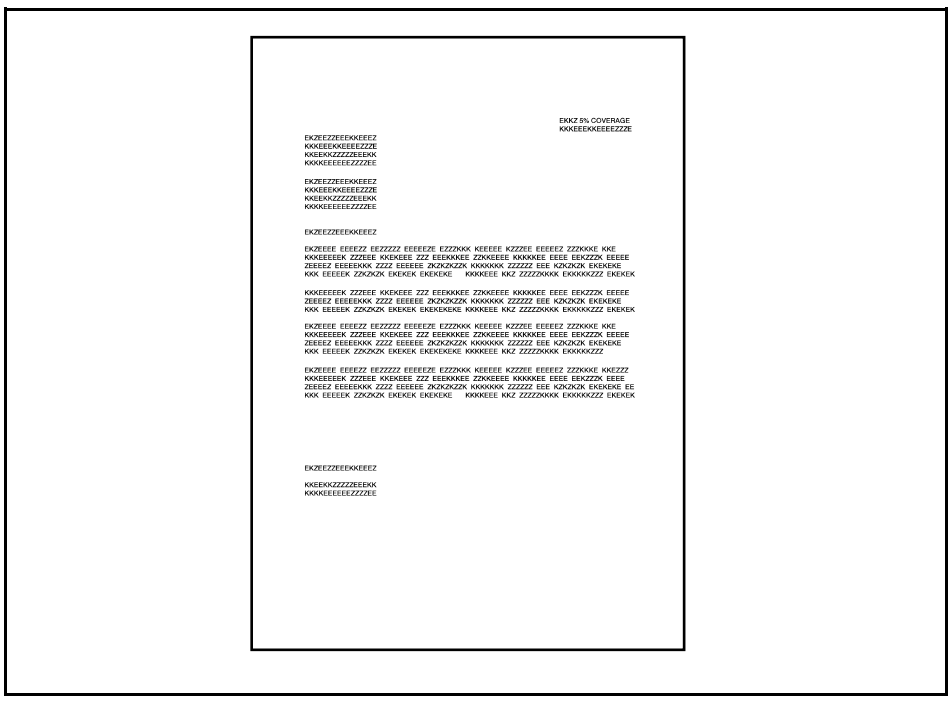
The printer has two consumables, the toner cartridge and staple cartridges, which may be ordered directly from Hewlett-Packard. Refer to Chapter 8 for ordering information.

Toner Cartridge Life

The Toner Cartridge (C3909A) is designed to simplify replacement of the major “consumable” parts. The toner cartridge contains the printing mechanism and a supply of toner.

At 5% page coverage, a toner cartridge is guaranteed to print approximately 15,000 images (see Figure 1-6).

Figure 1-6



Sample 5% Page Coverage

The toner cartridge may print less than 15,000 images if routinely printing very dense print. Conversely, when routinely printing pages with less coverage (such as short memos), or in EconoMode, the toner cartridge may print more than 15,000 images. However, EconoMode does not extend toner cartridge component life.

Note

For best results, always use a new toner cartridge before the expiration date stamped on the toner cartridge box.

Refilled Toner Cartridges & Non-HP Staple Cartridges

While Hewlett-Packard does not prohibit the use of refilled toner cartridges and non-HP staple cartridges during the warranty period or while under a maintenance contract, their use is not supported for the following reasons:

- Repairs resulting from the use of refilled toner cartridges and non-HP staple cartridges are not covered under the Hewlett-Packard warranty or maintenance contract.
- Hewlett-Packard has no control or process to ensure that a refilled toner cartridge or non-HP staple cartridge functions at the high level of reliability of a new HP LaserJet toner cartridge or HP LaserJet staple cartridge. Also, Hewlett-Packard cannot predict the long term reliability effect on the printer when using different toner formulations found in refilled cartridges.
- The print quality of HP LaserJet toner cartridges influences the customer's perception of the printer. Hewlett-Packard has no control over the actual print quality of a refilled toner cartridge.

Recycling Toner Cartridges

In order to reduce waste, Hewlett-Packard utilizes a recycling program for used toner cartridges. Cartridge components that do not wear out are recycled, as are plastics and other materials. Hewlett-Packard pays the shipping costs from the user to the recycling plant. For each cartridge returned, HP donates one U.S. dollar to be shared by the Nature Conservancy and the National Wildlife Federation. To join this recycling effort, follow the instructions inside the toner cartridge box.

Related Documentation and Training Media

Table 1-11 lists where to order related documentation. See "Ordering Parts" earlier in this chapter for the phone numbers of each organization.

Table 1-11 Related Documentation

Description	Part Number	SMO	SME	HPD
HP LaserJet 5Si Family Service Manual Bundle	C4077-99015			
HP LaserJet 5Si Family User Bundle	C3166-99018	X		
HP LaserJet 5Si MX Mopier User Bundle	C4077-99001	X		
HP JetDirect Print Server Software Installation Guide[1]	J2552-90051			X
HP LaserJet Family Quick Reference Service Guide	5021-0369	X	X	
HP PCL5 Printer Language Technical Reference Information Package	5021-0330	X	X	
HP LaserJet Printer Family Paper Specifications Guide	5010-6394			X
HP LaserJet 5Si HM User's Guide Erata Sheet	C3124-90901	X		
Introduction to Network Printing, Book	5961-0649	X	X	
Network Printing for the Enterprise, Video	5961-0650	X	X	
LaserJet Basic Hardware Training Course	5961-0880	X	X	
Solutions Connectivity Guide (Available from LDC 1-800-544-9976)	5962-8536E			
Specific Application Drivers				X

[1] Shipped with printer. (English version part number is shown. Other translations are available.

Technical Assistance

HP ASAP (Automated Support Access Program) provides free technical support information 24 hours a day, 7 days a week. The ASAP system includes HP AUDIO-TIPS and HP FIRST, both explained below. The ASAP service requires a touchtone phone.

HP AUDIO-TIPS

HP AUDIO-TIPS is an interactive voice response system providing prerecorded answers to the most frequently asked questions by HP LaserJet printer users. Helpful "System Maps" to the HP AUDIO-TIPS recordings are available by fax through HP FIRST.

HP FIRST

HP FIRST (Fax Information Retrieval Support Technology) is a phone-in fax service providing technical information for HP LaserJet users as well as service personnel. Receiving a fax requires a type 3 facsimile machine or fax card. Service related information includes:

- Service notes (HP Authorized dealers)
- Application notes
- Product Data Sheets
- Material Safety Data Sheets (MSDS)
- Typeface and accessory information
- Printer support software information
- Toner information
- Driver request form and Software Matrix.

HP FIRST, U.S.

Call the HP ASAP system (1-800-333-1917) and follow the voice prompts to enter HP FIRST.

HP FIRST, Europe

Call HP FIRST at one of the following numbers:

U.K., 0800-96-02-71
Belgium (Dutch), 078-11-19-0
Switzerland (German), 155-1527
Netherlands, 06-02-22-420
Germany, 0130-810061
Austria, 0660-8128

For English service outside the above countries, (31) 20-681-5792.

HP CompuServe Forum

CompuServe members can download a variety of support materials including product data sheets, software application notes, and printer drivers for many popular software applications. Members may also post and reply to questions in an interactive format. To access the HP Forum, type GO HP at any prompt. For more information, or to join CompuServe, call 1-800-524-3388.

Internet

Anonymous ftp library service is available for around-the-clock access to drivers, software, and technical support information for HP peripheral and computer products. Please note that paths may change without notice. Access the Internet or FTP address and use the menus to locate the software or support of your choice.

URL for Access HP: http://www.hp.com
URL for Software and Support: http://www.hp.com/go/cposupport
FTP address: ftp.hp.com
Login: anonymous
Password: your Internet name (or user identification)

FTP Path for Drive Software: /pub/printers
FTP Path for Network Software: /pub/networking

World Wide Web

Download printer driver software using www.hp.com/go/cposupport.

HP Reseller Sales and Service Support Line

The Hardware Technical Support Center (HTSC) is available for technical support to assist Hewlett-Packard authorized service technicians. The HTSC can be reached at 1-800-544-9976 between 7:00 A.M. and 6:00 P.M. Mountain Standard Time, Monday, Tuesday, Thursday and Friday. On Wednesdays the office closes at 4:00 P.M.

Other Areas

Outside of North America and Europe, contact your local HP sales office for assistance in obtaining technical support.

Warranty

This warranty entitles you to standard warranty services for your printer and accessories and is available from HP worldwide. However, there may be local variations in the level of warranty service. You should contact the local HP Service Center to check for the applicable local warranty in your country or province.

One-Year On-Site Limited Warranty

Hewlett-Packard warrants its computer hardware products against defects in materials and workmanship for a period of one year from purchase by the end user. During the warranty period, HP will, at its option, either repair or replace products which prove to be defective. *The warranty period begins either on the date of delivery or, where the purchase price includes installation by Hewlett-Packard, on the date of installation.*

Should HP be unable to repair or replace the product within a reasonable amount of time, you will be entitled to a refund of the purchase price if you return the product.

To have your printer serviced by HP you should contact the closest HP Service Center.

Exclusions

The warranty on your HP LaserJet 5Si family printer shall not apply to defects resulting from:

- Improper or inadequate maintenance by customer.
- Customer supplied software or interfacing.
- Unauthorized modification or misuse.
- Operation outside of the environmental specifications for the product.
- Operation of non-supported printing media.
- Duty cycle abuse maximum (see the note on the following page).
- Using a mechanical switchbox with the printer without a designated surge protector.
- Improper site preparation and maintenance.
- Failure to perform key operator maintenance every 350,000 images (250,000 images with HP LaserJet 5Si Heavy Media printers).
- Use of non-HP toner cartridges (see the following explanation), memory boards, or interface boards.

Note

The use of non-Hewlett-Packard toner cartridges alone does not affect either your warranty or any maintenance contract you may have purchased. However, if an HP LaserJet printer failure or damage is found to be attributable directly to the use of a non-HP toner cartridge, HP will not repair the printer free-of-charge. In this case, standard time-and-materials charges will be applied to service your printer for that particular failure or damage.

Operation of the printer beyond the limit of its **duty cycle** (printing greater than the equivalent of 100,000 images per month) shall be deemed printer abuse and all repairs thereafter will be billed on a time-and- materials basis.

If you are using a mechanical switch box, ensure that it is equipped with a surge protector. Damage to your printer could occur from the use of unprotected mechanical switch boxes.

Warranty Limitations

The warranty set forth above is exclusive and no other warranty, whether written or oral, is expressed or implied. Hewlett-Packard specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Service During the Warranty Period

If your hardware should fail during the warranty period, contact an authorized HP dealer or an HP Customer Service Center.

Service After the Warranty Period

If your hardware fails after the warranty period, contact an authorized HP dealer or your local Customer Service Center. If you have an HP Maintenance Agreement, request service under your agreement.

2

Site Requirements

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Environmental Requirements 2-4

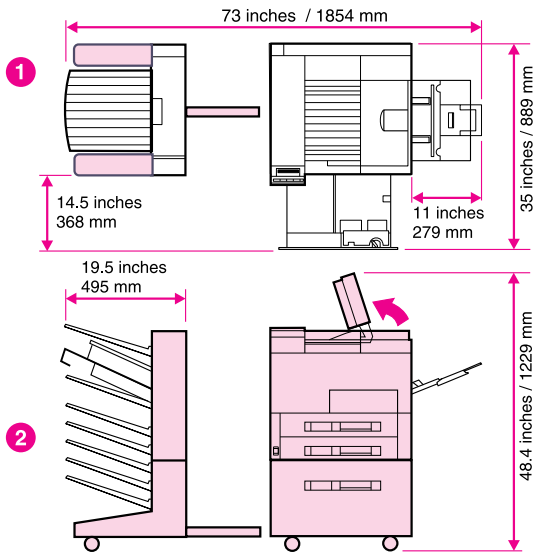
Operating Environment

The electrical specifications listed in Chapter 1 must be maintained to ensure proper operation of this printer. Consider the following points before installing the printer.

- Install in a well-ventilated, dust-free area.
- Install on a hard, flat and continuous surface, with all four printer feet level. Do not install on carpet or other soft surfaces.
- Ensure adequate power is supplied. Printer power requirements are listed under “Specifications,” in Chapter 1.
- Install where there is stable temperature and humidity, away from water sources, humidifiers, air conditioners, refrigerators, or other major appliances (see Table 2-1).
- Install away from direct sunlight, open flames, or ammonia fumes. If the printer is placed near a window, make sure the window has a curtain or blind to block any direct sunlight.
- Install with enough space around the printer for proper access and ventilation (see Figure 2-1).
- Install printer away from the direct flow of exhaust from air ventilation systems.

Space Requirements

Figure 2-1



Printer Space Requirements
1 Top view
2 Side view

Environmental Requirements

Keep the printer within the following environmental conditions for optimum performance.

Table 2-1 Printer and Toner Cartridge Environmental Conditions

Item	Operating	Storage
Temperature	10° to 32.5° C (50° to 90.5° F)	0° to 40° C (32° to 105° F)
Humidity	20 to 80% RH (with no condensation)	15 to 90% RH (with no condensation)

3

Operating Overview

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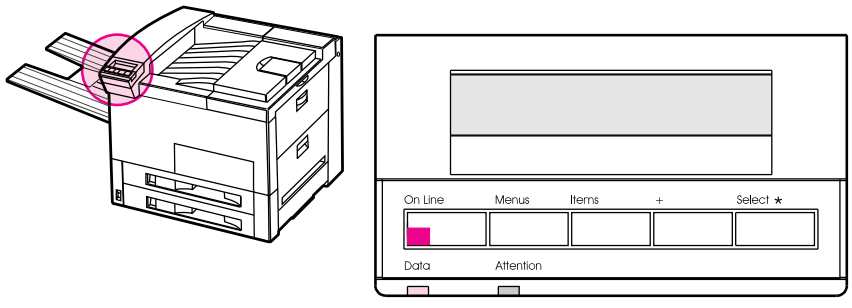
Using the Control Panel

Control Panel Layout

The control panel consists of a 2-line, 20-character per line display panel, five keys, and three indicator lights.

Figure 3-1



Control Panel Layout

Table 3-1 Control Panel Keys

Key	Function
[On Line]	Switches the state of communication between computer and printer to ON (on line) or OFF (off line). Stops printing when memory clears.
[Menus]	Provides a menu system for obtaining status information or changing the printer configuration.
[Items]	Cycles through the items on the selected menu. Some menu items appear depending upon the options installed and the configuration of other menu choices.
[+]	Steps through the item choices.
[Select]	Selects a desired menu item; an asterisk (*) indicates the selected item.

Indicator Lights

The control panel indicator lights are described in the following table. The column labeled “Do this:” includes an action only when an action is required.

Table 3-2 Indicator Lights

When this indicator:	Looks like this:	It means this:	Do this:
On Line	On	Ready to receive data.	No action required.
	Flashing	Going off line.	
	Off	Printer is off line.	Press [On Line] to place printer on line.
Data	Off	No data is being received or processed in the printer.	No action required.
	Flashing	Data is being received or processed.	No action required.
	On	Data is resident in the printer and processed as far as possible. More data is expected, but no activity on the channel at this time.	No action required.
Attention	On	Catastrophic error. Printer system is halted.	Turn printer OFF, then ON. If problem persists, refer to Chapter 7.
	Flashing	The printer needs attention.	Read and respond to display panel message.
	Off	There are no messages or error conditions requiring attention.	No action required.

Settings and Defaults

The printer makes most printing decisions based on either temporary settings or factory (permanent) defaults.

Note Settings you send from software applications override printer defaults.

Temporary Settings are the values set for the current print job by your software application. Temporary settings remain in effect until the current print job is finished.

Control Panel Defaults are the values entered by selecting a control panel item and pressing [Select]. An asterisk (*) next to the item name indicates that it is now the default. The printer retains default settings even when power is switched OFF.

Factory Defaults are the permanent default values for each menu item set at the factory. These values are listed in Table 3-3.

Printer Driver Information

You can override or change any Printing Menu setting through most software applications and from the printer driver. When you change a setting from the printer control panel, the new setting becomes the printer default value.

Paper Source Default

The printer paper source is specified by the print job, not the printer control panel. The following paragraphs apply when the current job does not specify a paper source. Unless changed or not specified by the current job, the software application, or the printer driver, the paper source default is determined by the “Cold Reset Paper Size” (letter or A4) set in the Service Mode Menu.

- If Tray 1 is set to the Cold Reset Paper Size, and if paper is loaded in the tray (no matter what size), the printer will pull from Tray 1.
- If there is no paper in Tray 1, and Tray 4 is installed and loaded with the Cold Reset Paper Size, the printer will pull from Tray 4.
- If there is no paper in Tray 1, and Tray 4 is not installed, the printer will pull from the first tray containing the Cold Reset Paper Size.
- If none of the trays contain the Cold Reset Paper Size, the printer will prompt the user to put letter or A4 in Tray 1.

Restoring Factory Defaults

Caution

If possible, print a PCL Configuration Page prior to performing a Cold Reset. This will document current settings for later reference.

Performing a Cold Reset resets the JetDirect configuration. To avoid making changes to your configuration, remove the JetDirect card before performing a cold reset

1. Press and hold [On Line] while powering the printer ON.
2. Hold down [On Line] until RESTORING FACTORY SETTINGS message appears. This message is followed by the power-on INTERNAL TEST message. The printer then re-displays RESTORING FACTORY SETTINGS until the power-on initialization is completed. The factory defaults are listed in Table 3-3.

Setting the Display Language

1. Press and hold [Select] while powering ON. Hold [Select] until CONFIG LANGUAGE appears.
2. Release [Select]. INTERNAL TEST appears briefly. Wait for LANGUAGE=ENGLISH to appear.
3. Press [+] repeatedly until the desired language appears.
4. Press]Select] to save your choice. An asterisk (*) will appear beside your language selection.

Table 3-3 Factory Default Settings

Menu Item	Default Setting
DISPLAY LANGUAGE=	ENGLISH
PAPER DESTINATION=	TOP OUTPUT BIN
PAPER SIZE=	LETTER or A4
PAPER TYPE=	PLAIN
ENVELOPE FEEDER SIZE=	COM10
ORIENTATION=	PORTRAIT
PERSONALITY=	AUTO
RESOLUTION ENHANCEMENT=	ON
PRINT DENSITY=	3
ECONOMODE=	OFF
2-SIDED=	OFF
BINDING=	LONG EDGE
PRINT POSTSCRIPT ERRORS=	OFF
JAM RECOVERY=	OFF
PAGE PROTECT=	AUTO
RESOLUTION=	600 DOTS PER INCH
I/O TIMEOUT=	15 SECONDS
AUTO CONTINUE=	ON
TONER LOW=	STOP
POWER SAVE DELAY=	1 HOUR
RESOURCE SAVING=	AUTO
PARALLEL I/O SPEED SETTING=	HIGH
IO BUFFER=	OFF
IO SIZE=	10K
COLD RESET PAPER=	LETTER
SERVICE MESSAGE=	OFF
DIAGNOSTICS=	OFF

Heavy Media Fuser Mode Explanation

The LaserJet 5Si HM (Heavy Media) provides users the capability to enhance toner adhesion for heavier media. The fuser mode choices can be made at the printer's control panel or with PJL commands. Press MENU until you see PRINT QUALITY MENU. Press ITEM until you see Fuser=STD PAPER. Make your choice by pressing + and then SELECT to save the selection.

At the control panel, the menu choices are as follows:

STDPAPER
HEAVYPAPER1
HEAVYPAPER2
CARDSTOCK1
CARDSTOCK2
CARDSTOCK3

The explanation below is to help determine the best fuser mode for specific media types. Table 3-4 is provided as a quick reference tool and should be used as a guideline.

STDPAPER: The best mode for typical copy bond type paper, transparencies, labels or envelopes. A selection other than STDPAPER should not be necessary for this type of media. The best media weight for this setting is 20-28 lb bond. If better toner adhesion is desired, choose HEAVYPAPER1.

HEAVYPAPER1: This mode may be most suitable for 28-36 lb bond media or heavier label stock. If better toner adhesion is desired, try HEAVY PAPER2 and evaluate the fusing performance.

HEAVYPAPER2: This setting is primarily an optional setting for media in the HEAVYPAPER1 range, 36-42 lb Bond.

CARDSTOCK1: Hewlett-Packard recommends this mode as a starting point for all cardstock media, 90 lb Index/43 lb Bond. Do not use this mode for standard or light media. If better toner adhesion is desired, try CARDSTOCK2.

CARDSTOCK2: This mode may provide increased toner adhesion over CARDSTOCK1. CARDSTOCK2 is intended for use with cardstock media, 90 lb Index/43 lb Bond. Do not use this mode for standard or light media. This mode may cause excessive jams or media deformation on standard and light media. If better toner adhesion is desired, try CARDSTOCK3.

CARDSTOCK3: This mode should only be used if toner is not adhering when using CARDSTOCK1 or CARDSTOCK2.

Table 3-4 Initial Fuser Mode Recommendation

STD PAPER	HEAVY PAPER1	HEAVY PAPER2	CARD STOCK1	CARD STOCK2	CARD STOCK3
Typical copy/bond paper, labels, envelopes, and transparencies. Supports 20-28 lb Bond media.	Heavier copy/bond paper, labels. Supports 28-36 lb Bond media.	Heavier copy/bond paper, labels. Supports 36-42 lb Bond media.	Cardstock, heavy paper. Minimum media weight supported is 90 lb Index 43 lb Bond.	Cardstock heavy paper. Minimum media weight supported is 90 lb Index 43 lb Bond.	Cardstock heavy paper. Minimum media weight supported is 90 lb Index 43 lb Bond.

Note Any preprinted media, labels or envelopes must have inks, coatings or adhesives that withstand temeratures up to 215° C. Refer to the HP LaserJet Printer Family Paper Specification Guide for more complete media specifications.

Setting the Fuser Mode Using PJL Command

The printer default can be set using the following command:

<ESC>%-12345X@PJL<CR><LF>
@PJLDEFAULTFUSER=STDPAPER<CR><LF>
<ESC>%-12345X<CR><LF>

The range choices are as follows:

STDPAPER
HEAVYPAPER1
HEAVYPAPER2
CARDSTOCK1
CARDSTOCK2
CARDSTOCK3

Control Panel Menus

Press [Menus] to cycle through the control panel menus. Each menu is described in a separate table in this section. Table 3-5 provides a map of all the menus and their associated items. Menu items are displayed only if their associated option is installed, or function is activated.

All menus and their associated items are accessible when the printer is on line. In a menu mode, if no keys are pressed for approximately 30 seconds, the system will automatically return to the top level and display:

- READY, if the printer was on line.
- OFFLINE, if the printer was off line.
- An existing error or service message.

To select a menu item:

1. Press [Menus] repeatedly until the desired menu appears.
2. Press [Items] repeatedly until the desired item appears.
3. Press [+] repeatedly (or hold down [+] to scroll) until the desired setting appears.
4. Press [Select] to save the selection. An asterisk appears next to the selection, indicating that it is now the default.
5. Press [Menus] or [On Line] to exit the menus.

Note Shaded items appear only if the associated option or function is activated.

Table 3-5 Control Panel Menu Map

TRAY MENU	JOB CONTROL MENU	TEST MENU	CONFIGURATION MENU	PRINT QUALITY MENU
See Table 3-6	See Table 3-7	See Table 3-8	See Table 3-9	See Table 3-10
ENVELOPE FEEDER TYPE	CANCEL JOB	PCL CONFIGURATION PAGE	SERVICE MESSAGE	ECONOMODE
ENVELOPE FEEDER SIZE	PRESS SELECT TO FORMFEED	POSTSCRIPT CONFIGURATION PAGE	2-SIDED (DUPLEX)	RESOLUTION
TRAY 1 TYPE		PCL FONT LIST	BINDING	RESOLUTION ENHANCEMENT
TRAY 1 SIZE		POSTSCRIPT FONT LIST	PAPER DESTINATION	PRINT DENSITY
TRAY 2 TYPE		DISK DIRECTORY PAGE	ORIENTATION	*FUSING=
TRAY 3 TYPE		DEMO PAGES	POWER SAVE DELAY	STD PAPER
TRAY 4 TYPE		PRINT ERROR LOG	PERSONALITY	HEAVY PAPER 1
		SHOW ERROR LOG	AUTO CONTINUE	HEAVY PAPER 2
		PAPER PATH TEST	RESOURCE SAVE	CARD STOCK 1
			PCL MEMORY	CARD STOCK 2
			POSTSCRIPT MEMORY	CARD STOCK 3
			TONER LOW	
			PAGE PROTECT	

POSTSCRIPT MENU	I/O MENU	HP MIO 1 MENU	HP MIO 2 MENU	SERVICE MODE MENU
See Table 3-11	See Table 3-11	See Table 3-14	See Table 3-14	See Table 3-15
PRINT POSTSCRIPT ERRORS	PARALLEL I/O SPEED	POSSIBLE MENU ITEMS	POSSIBLE MENU ITEMS	PAGE COUNT
JAM RECOVERY	I/O TIMEOUT			MAINT COUNT
	I/O BUFFER			SERIAL NUMBER
	I/O SIZE			CLEAR ERROR LOG
				COLD RESET PAPER
				DIAGNOSTICS

PCL MENU
See Table 3-11
SOURCE
NUMBER
PITCH
SYM SET
FORM

* Only shown on menu map for HP LaserJet 5Si HM.

Table 3-6 Tray Menu Items

Tray Menu Items	Item Choices	Action Required
ENV FEEDER TYPE=	PLAIN* PREPRINTED LETTERHEAD TRNSPRNCY PREPUNCHED LABELS BOND RECYCLED COLOR CARDSTOCK	Press [Item] to display alternate menu items. Press [+] to display alternate choice. Press [Select] to activate choice.
ENV FEEDER SIZE=	COM10* MONARCH DL C5 B5 JPOSTD	Press [Item] to display alternate menu items. Press [+] to display alternate choice. Press [Select] to activate choice.
TRAY 1 TYPE= TRAY 2 TYPE= TRAY 3 TYPE= TRAY 4 TYPE=	PLAIN* PREPRINTED LETTERHEAD TRNSPRNCY (not in Trays 2 or 3) PREPUNCHED LABELS (not in Trays 2 or 3) BOND (not in Trays 2 or 3) RECYCLED COLOR CARDSTOCK (not in Trays 2 or 3)	Press [Item] to display alternate menu items. Press [+] to display alternate choice. Press [Select] to activate choice.
TRAY 1 SIZE=	LETTER* LEGAL ISO A4 EXECUTIVE 11 X 17 ISO A3 JIS B4 JIS B5 CUSTOM COM 10 MONARCH C5 DL B5 JPOSTD	Press [Item] to display alternate menu items. Press [+] to display alternate choice. Press [Select] to activate choice.

Asterisk (*) indicates printer default.

Shaded menu items appear only if associated option or function is activated.

Job Control Menu

The items available in the Job Control Menu can also be changed through software applications if an appropriate printer driver is installed.

Table 3-7 Job Control Menu Items

Job Control Menu Items	Item Choices	Action Required
CANCEL JOB	None	Press [Item] to display alternate menu items. Press [Select] to cancel Job. Printer displays: STOPPING CHECK LAST PAGE When printer stops printing it displays: PRESS SELECT TO CANCEL JOB Press [Select] again. Printer displays CANCELLING JOB until all data for current job has been processed. Can take up to 5 minutes to cancel job. Printer returns to READY when finished.
PRESS SELECT TO FORMFEED	None	Press [Item] to display alternate menu items. Press [Select] to activate formfeed. Printer returns to READY when finished.

Test Menu

Test Menu items can be selected only from the printer control panel. You cannot change or override them from your software application. See "Testing the Printer" later in this chapter for detailed information about running printer tests and interpreting their results.

Table 3-8 Test Menu Items

Test Menu Items	Item Choices	Action Required
PCL CONFIGURATION PAGE	None	Press [Select] to print. Printer displays PRINTING CONFIGURATION PAGE. Printer returns to READY when finished.
POSTSCRIPT CONFIGURATION PAGE	None	Press [Select] to print. Printer displays PRINTING CONFIGURATION PAGE. Printer returns to READY when finished.
PCL FONT LIST	None	Press [Select] to print. Printer displays PRINTING FONT LIST. Printer returns to READY when finished.
POSTSCRIPT FONT LIST	None	Press [Select] to print. Printer displays PRINTING FONT LIST. Printer returns to READY when finished.
DISK DIRECTORY PAGE	None	Press [Select] to print. Printer displays PRINTING DISK DIRECTORY. Printer returns to READY when finished.
DEMO PAGES	None	Press [Select] to print. Printer displays PRINTING DEMO PAGES. Printer returns to READY when finished.
PRINT ERROR LOG	None	Press [Select] to print. Printer returns to READY when finished.
SHOW ERROR LOG	None	Press [Select] to show/view. Press [+] to display error codes. Printer returns to READY when finished.
PAPER PATH TEST	1, 2, 3, 4, ENVELOPE 1, 10, 50, 100, 500	Select output destination and 2-sided printing in CONFIGURATION MENU before starting Paper Path Test. Press [Select] . Printer displays INPUT TRAY=. Press [+] to display choices. Press [Select] to activate choice. Printer displays NUMBER OF COPIES=. Press [+] to display choices. Press [Select] to activate choice. Printer displays PRINTING PAPER PATH TEST. Printer returns to READY when finished.

Shaded menu items appear only if associated option or function is activated.

Configuration Menu

This menu contains the items for Personality, Resource Saving and Memory setup. Depending on how the printer is configured, any combination of menu items and possible values can appear. Memory configuration items can be selected only from the printer control panel.

Caution

When changing memory configuration or I/O Buffering (I/O Menu), the printer will automatically reset. All fonts, macros, and downloaded data (except what is stored on the optional Disk Accessory) will be lost.

When changing Configuration Menu items, the newly selected values become active when the next job starts.

Table 3-9 listing the Configuration Menu items is located on the following page.

Table 3-9 Configuration Menu Items

Configuration Menu Items	Item Choices	Action Required
SERVICE MESSAGE=	ON OFF *	Displayed only after approx 350,000 (250,000 for HP LaserJet 5Si Heavy Media printers) images and only when PERFORM USER MAINTENANCE message is displayed. Set to OFF* after performing maintenance to turn off PERFORM USER MAINTENANCE message. Press [+] to display choice. Press [Select] to activate choice.
2-SIDED=	ON OFF *	Displayed only if duplex option is installed. Press [+] to display choice. Press [Select] to activate choice.
BINDING=	LONG EDGE * SHORT EDGE	Displayed only if duplex option is installed, and only if 2-sided printing is enabled (ON*). Places top of backside image the same as the front (LONG EDGE), or at opposite end (SHORT EDGE). Press [+] to display choice. Press [Select] to activate choice.
PAPER DESTINATION=	TOP OUTPUT BIN * LEFT OUTPUT BIN OPTIONAL OUTPUT BIN 1 OPTIONAL OUTPUT BIN n	Press [+] to display choice. Press [Select] to activate choice.
ORIENTATION=	PORTRAIT * LANDSCAPE	Press [+] to display choice. Press [Select] to activate choice.
POWER SAVE DELAY=	1 HOUR * / 2 HOURS / 3 HOURS OFF 10 SECONDS (SERVICE MODE ONLY) 15 MINUTES / 30 MINUTES	Press [+] to display choice. Press [Select] to activate choice.
PERSONALITY=	AUTO * PCL POSTSCRIPT	Press [+] to display choice. Press [Select] to activate choice.
AUTO CONTINUE=	ON * OFF	Press [+] to display choice. Press [Select] to activate choice.
RESOURCE SAVE=	AUTO * OFF ON	Appears only if PostScript is installed, and then only if at least 13 Mbytes of memory are installed. Press [+] to display choice. Press [Select] to activate choice.
PCL / PS MEM=nnnnnK		nnnnnK =possible memory sizes Press [+] to display memory size choice. Press [Select] to activate choice.
TONER LOW=	STOP * CONTINUE	Press [+] to display choice. Press [Select] to activate choice.
PAGE PROTECT=	AUTO * ON	Displayed only after a partially printed page eject. Press [+] to display choice. Press [Select] to activate choice.

Asterisk (*) indicates printer default.

Shaded menu items appear only if associated option or function is activated.

Print Quality Menu

Table 3-10 Print Quality Menu Items

Print Quality Menu Items	Item Choices	Action Required
ECONOMODE=	OFF * ON	Press [+] to display choice. Press [Select] to activate choice.
RESOLUTION=	600 * / 300 DOTS PER INCH	Press [+] to display choice. Press [Select] to activate choice.
RESOLUTION ENHANCEMENT=	OFF ON *	Press [+] to display choice. Press [Select] to activate choice.
PRINT DENSITY=	1 (Lighter) 2 3 * 4 5 (Darker)	Press [+] to display choice. Press [Select] to activate choice. To make print darker, chooe a higher number; to make it lighter, choose a lower number.
FUSING**		Press Menu to display choice. Press Items to select Fusing. Press + to save selection.

Asterisk (*) indicates printer default.

** Only with HP LaserJet 5Si Heavy Media printers

PostScript Menu

Table 3-11 PostScript Menu Items

PostScript Menu Items	Item Choices	Action Required
PRINT POSTSCRIPT ERRORS=	OFF * ON	Press [+] to display choice. Press [Select] to activate choice.
JAM RECOVERY=	OFF * ON	Press [+] to display choice. Press [Select] to activate choice.

Asterisk (*) indicates printer default.

Shaded menu items appear only if associated option or function is activated.

Table 3-12 PCL Menu Items

PCL Menu Items	Item Choices	Action Required
SOURCE=	INTERNAL *	Press [+] to display choice. Press [Select] to activate choice.
NUMBER=	0..52 (0 *)	Press [+] to display choice. Press [Select] to activate choice.
PTICH=	0.44..99.99 (10.00 *)	Press [+] to display choice. Press [Select] to activate choice.
SYM SET=	ROMAN-8 ISO L1 ISI K2 ISO L5 PC-8 PC-8DN PC-850 PC-852 PC-8 TK WIN L1 WIN L2 WIN L5 DESKTOP PS TEXT VN INTL VN US MS PUBL MATH-8 PS MATH VN MATH PI FONT LEGAL ISO 4 ISO 6 ISO 11 ISO 15 ISO 17 ISO 21 ISO 60 ISO 69 WIN3.0	Press [+] to display choice. Press [Select] to activate choice.
FORM=	5..128 LINES (60 LINES *)	Press [+] to display choice. Press [Select] to activate choice.

Asterisk (*) indicates printer default.

Shaded menu items appear only if associated option or function is activated.

I/O Menu

Caution

When changing memory configuration (Configuration Menu) or I/O Buffering, the printer will automatically reset. All fonts, macros, and downloaded data (except what is stored on the optional Disk Accessory) will be lost.

Table 3-13 I/O Menu Items

I/O Menu Items	Item Choices	Action Required
PARALLEL IO SPEED=	HIGH * LOW	Press [+] to display choice. Press [Select] to activate choice.
IO TIMEOUT=	xxx SECONDS 5 SECONDS * 10 SECONDS 15 SECONDS 20 SECONDS 30 SECONDS 60 SECONDS 120 SECONDS 180 SECONDS 240 SECONDS 300 SECONDS	xxx =any value between 5 to 300 (ex: 207) seconds as set by user with PJL. If timeout is reset to one of the standard values, the PJL value will disappear. Press [+] to display choice. Press [Select] to activate choice.
IO BUFFER=	AUTO * OFF ON	Press [+] to display choice. Press [Select] to activate choice.
IO SIZE=nnnnnK		Displayed only if IO BUFFER=ON. Press [+] to display choice. Press [Select] to activate choice.

Asterisk (*) indicates printer default.

Shaded menu items appear only if associated option or function is activated.

MIO 1 and 2 Menus

Note Items displayed depend upon the MIO card that is installed in the printer.

Table 3-14 MIO 1 and 2 Menu Items

MIO 1 and 2 Menu Items	Item Choices	Action Required
Items displayed depend upon the MIO card that is installed in the printer.		The actions required depend upon the items displayed on the Menu.

Shaded menu items appear only if associated option or function is activated.

Service Mode

The Service Mode should be used only by authorized service personnel. While in Service Mode, you can:

- Verify and set the Page Count and serial number. These are displayed on the PCL Configuration Page.
- Set the Cold Reset Paper Size Default. (This sets the factory default paper size to either Letter or A4.)
- Clear the ERR LOG.

Initiate the Service Mode as follows:

1. Hold down [Items] and [+] while powering ON the printer, until all lights are illuminated and the Display is blank. (If the Display Panel reads INTERNAL TEST at this point, the keys were released too soon. Repeat this step until successful.)
2. Press [Select]. The message SERVICE MODE is displayed briefly, then the printer automatically begins an INTERNAL TEST. After several seconds, both Control Panel Indicators turn OFF. (The printer may display WARMING UP if it has not warmed up completely.) After the printer has warmed up and passed the self test, SERVICE MODE is displayed.
3. Press [Menus] once to display SERVICE MENU.

To exit the Service Mode press [On Line].

Table 3-15 Service Mode Menu Items

Service Mode Menu Items	Item Choices	Actions Required
PAGECOUNT=	nnnnnnn	Displays total number of pages printed by the printer. Press [+] to step through values above cursor. Press [Select] to activate choice. Cursor will move to next digit. Printer will set new number into NVRAM after least significant digit is selected. Pressing [Menus] or [Items] before completing all digits will cancel the new setting. Pressing [Menus] returns printer to the main menu system. Pressing [Items] moves to the next menu item.
MAINTCOUNT=	nnnnnnn	Displays the pagecount when the next preventive maintenance should be performed (maintenance should be performed every 350,000 pages). Press [+] to step through values above cursor. Press [Select] to activate choice. Cursor will move to next digit. Printer will set new number into NVRAM after least significant digit is selected. Pressing [Menus] or [Items] before completing all digits will cancel the new setting. Pressing [Menus] returns printer to the main menu system. Pressing [Items] moves to the next menu item.
S.N. =	aaxxyynnnn aa =A...Z xx =A...Z and 0...9 yy =0...9 and a...z nn =0...9	Displays printer serial number (also located on the printer back cover). Press [+] to step through values above cursor. Press [Select] to activate choice. Cursor will move to next digit. Printer will set new number into NVRAM after least significant digit is selected. Pressing [Menus] or [Items] before completing all digits will cancel the new setting. Pressing [Menus] returns printer to the main menu system. Pressing [Items] moves to the next menu item.
CLEAR ERROR LOG		Press [Select] to activate. Printer returns to On Line (READY) when completed.
COLD RESET PAPER=	LETTER * A4	Press [+] to change setting. Press [Select] to activate choice.
DIAGNOSTICS=	OFF * ON PAGECOUNT=nnnnnnn	For factory test purposes ONLY. DO NOT change. Press [+] to step through values above cursor. Press [Select] to activate choice. Cursor will move to next digit. Printer will set new number into NVRAM after least significant digit is selected. Pressing [Menus] or [Items] before completing all digits will cancel the new setting. Pressing [Menus] returns printer to the main menu system. Pressing [Items] moves to the next menu item.

Setting Page Count, Maintenance Count, and Serial Number

The page count, maintenance count, and printer serial numbers are stored in Non-Volatile Memory. PAGECOUNT is the total number of images printed by the printer, MAINTCOUNT is the pagecount when the next preventive maintenance should be performed (every 350,000 images), and S.N. is the printer serial number (also located on the printer back cover).

Note

LaserJet 5Si HM (C3124A) has a 250,000 images user preventive maintenance interval due to heavy media usage.

If it is necessary to replace the Formatter PCA, these numbers should be set to the current values to accurately reflect the age of the print engine. The procedures for setting these values are listed in Table 3-15.

Before removing the old Formatter PCA, print a PCL or PostScript Configuration Page to verify the current values, if possible.

Note

If it is not possible to print a PCL Configuration Page, try to verify the values before replacing the Formatter PCA by following steps 1 through 3, below.

After verifying the page count, maintenance count, and printer serial number from the old Formatter PCA, replace it with the new PCA.

1. Enter the Service Mode as previously described in this chapter.
2. When SERVICE MODE is displayed, press [Menus] to access the Service Menu.
3. Press [Items to display PAGECOUNT=, MAINTCOUNT=, and S.N.=.
4. Enter the appropriate values for each item.
5. Press [On Line] to exit Service Mode.

Setting the Cold Reset Default Paper Size

When replacing a Formatter PCA with a default paper size setting of A4, set COLD RESET PAPER= to A4.

1 Enter the Service Mode as previously described in this chapter.
2 Press [Menus] to access the Service Menu.
3 Press [Items to step through the menu until COLD RESET PAPER=LETTER* is displayed.
4 Press [+] to toggle between Letter and A4 paper.
5 Press [Select] to activate your choice.
6 Press [On Line] to exit Service Mode.
7 Perform a Cold Reset to activate new choice.

PowerSave

An additional 10 second time interval is added to the PowerSave function in the Service Menu.

With Service Mode displayed, press [Menus] until CONFIGURATION MENU is displayed.

Note If you have changed the PowerSave Delay, be sure to change it back to the user's preference at the completion of the service call.

1 Press [Items] until POWER SAVE DELAY= is displayed.
2 Press [+] until the desired time interval is displayed.
3 Press [Select] to save your selection.
4 Press [Items] to return to the Service Mode.
5 Press [On Line] to place the printer back on line.

Testing the Printer

PCL Configuration Page

When you print a PCL Configuration Page, the printer checks its internal controller and I/O interface, then prints two pages, one showing the overall printer configuration (see Figure 3-2), and one showing the current menu settings (see Figure 3-3). You can review these printouts to verify proper installation of installed accessories, options, and personalities.

1 Press [Menus] until TEST MENU appears.
2 Press [Items] until PCL CONFIGURATION PAGE appears.
3 Press [Select] to print the configuration pages.

Paper Path Test

You can test printer operation with the Paper Path Test in the Test Menu. It will print 1, 10, 100, or 500 (single or 2-sided) pages from any of the paper trays (or the Envelope feeder) and deliver them to a previously specified output bin.

First, select PAPER DESTINATION and 2-SIDED printing (if installed) in the Configuration Menu (Table 3-9) and then run the Paper Path Test from the Test Menu (Table 3-8).

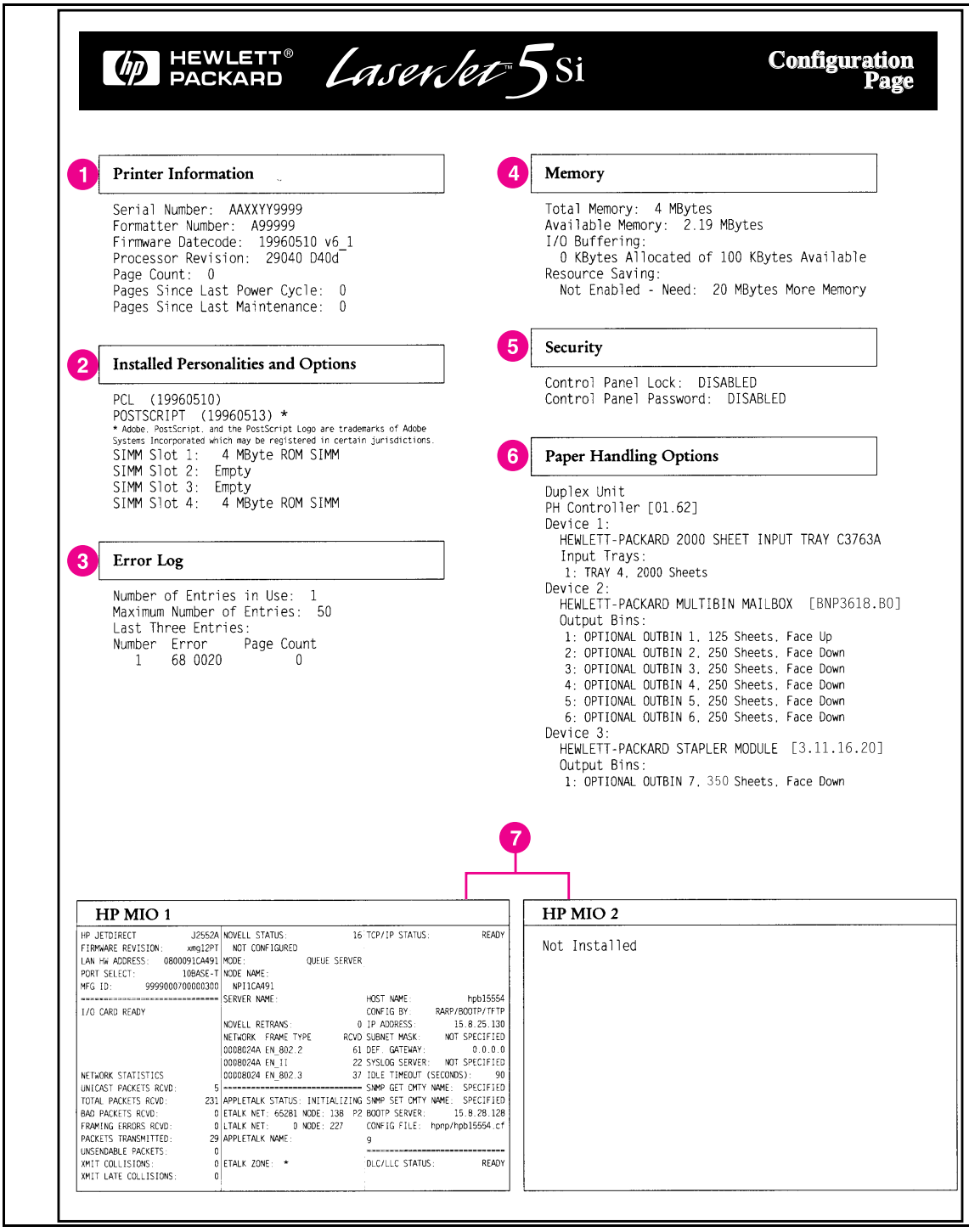


Figure 3-2 PCL Configuration Page

Table 3-16 Key to Figure 3-2

1 **Printer Information** lists printer specific statistics.

Serial Number shows the printer serial number.

Formatter Number shows the number of the formatter board.

Firmware Datecode is an eight-digit date (YYYYMMDD) of the internal code.

Processor Revision is the revision number of the firmware processor.

Page Count shows the number of pages the printer has printed.

Pages Since Last Power Cycle shows the number of pages the printer has printed since the last time it was turned off.

Pages Since Last Maintenance shows the number of pages the printer has printed since a maintenance kit was installed.

2 I**nstalled Personalities and Options** lists printer languages and all accessories that are installed.

Note: HP LaserJet 5Si HM will show 1 Meg ROM when Thermal Control PCA is installed. The PostScript key SIMM uses the same identifier.

3 **Error Log** shows the number of errors currently in the error log and the last three errors that occurred.

4 **Memory** shows the total amount of installed memory, and indicates the amount of available memory for PCL applications (such as font downloading software). Information about the current I/O Buffering and Resource Saving configuration appears here. If the printer does not have enough memory installed to enable these two features, the amount of additional memory needed appears.

5 **Security** lists whether the control panel is locked, whether the control panel has a security password, and if the Printer Hard Disk (optional in 5Si/5Si MX) has been write-protected.

6 **Paper Handling Options** lists the installed paper handling accessories. These accessories may include the Duplex Unit, Envelope Feeder, 2000-Sheet Input Tray, Multi-Bin Mailbox, or Mailbox with Stapler.

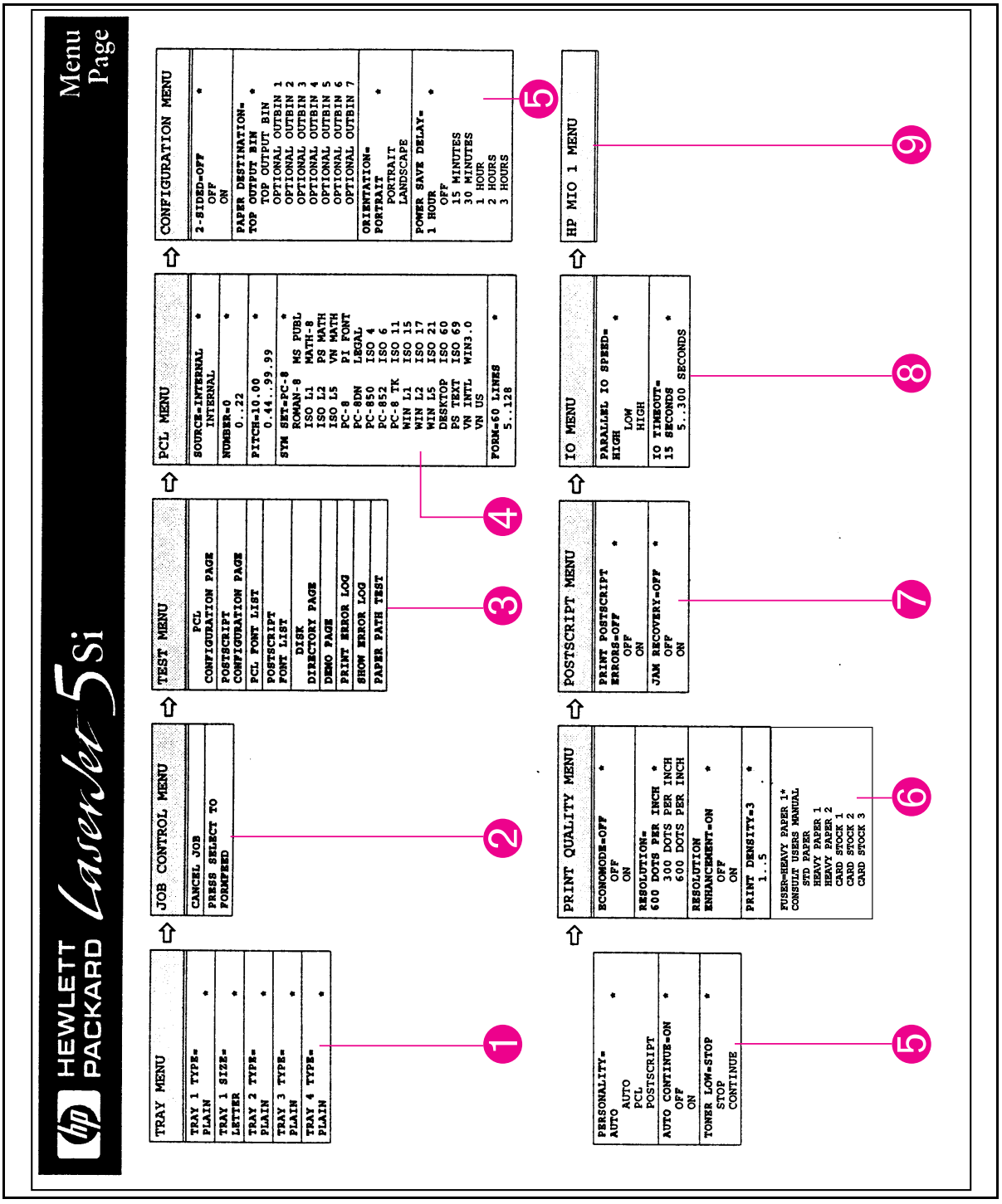


Figure 3-3 PCL Menu Map Page

Table 3-17 Key to Figure 3-3

1 **Tray Menu** lists the current media types settings, and for Tray 1 or the Envelope Feeder, the media size.

2 **Job Control Menu** shows the Cancel Job and Form Feed times.

3 **Test Menu** lists the different available printer tests.

4 **PCL Menu** lists the PCL font settings used.

5 **Configuration Menu** lists the current settings for the configuration items.

6 **Print Quality Menu** lists the current settings for the different print quality items.

7 **PostScript Menu** appears if the PostScript option is installed. This menu lists the current settings for the two PostScript menu items.

8 **IO Menu** lists the current settings for the Parallel IO Speed, IO Timeout, and IO Buffer.

9 **HP MIO Menu(s)** list the current settings for the HP MIO option.

Cold Reset

Cold reset clears all data from the printer memory and sets all the defaults (except Service Mode settings) back to the factory settings.

Caution

Performing a cold reset resets the JetDirect configuration. To avoid making changes to your configuration remove the JetDirect card before performing a cold reset.

If possible print a PCL and a PostScript Configuration Page prior to performing a Cold Reset. This will document current settings for later reference.

To perform a cold reset:

1. Turn the printer OFF.
2. While holding the [On Line] key down, turn the printer ON. RESTORING FACTORY SETTINGS appears briefly on the display, then INTERNAL TEST appears. After about 30 seconds, RESTORING FACTORY SETTINGS again appears on the display, followed by READY. The On Line indicator also illuminates. The cold reset is now complete.

4

Maintenance and Adjustments

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Cleaning Spilled Toner 4-5
Preventative Maintenance 4-6
Tray 2 and 3 Adjustment Procedure 4-7
Tray 4 Adjustment Procedure 4-9

Cleaning the Printer and Accessories

To maintain the print quality and paper performance, thoroughly clean the printer and the paper handling accessories:

- Every time you change the toner cartridge.
- After printing approximately 15,000 images.
- Whenever print quality problems occur.

Clean the outside surfaces with a lightly water-dampened cloth. Clean the inside with only a dry, lint-free cloth. Use the guidelines listed in Table 4-1. Observe the warnings and cautions below.

WARNING!

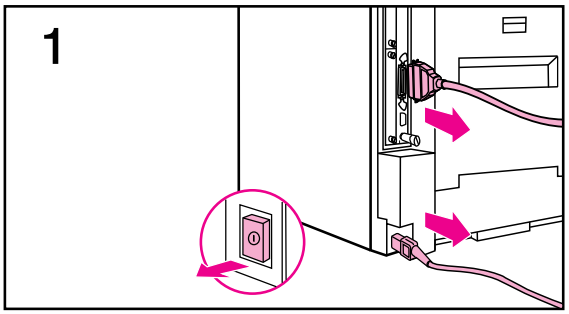
Before you begin these steps, turn the printer OFF and unplug all power cords to avoid shock hazard.

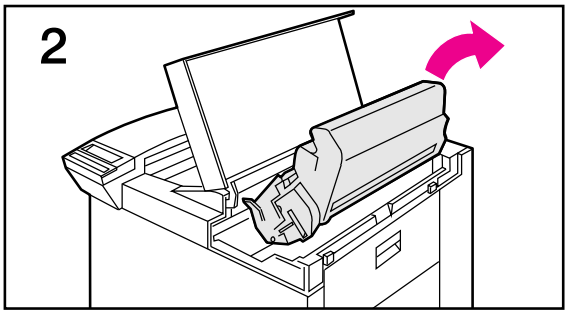
Be careful when cleaning around the Fusing Assembly area. It may be HOT.

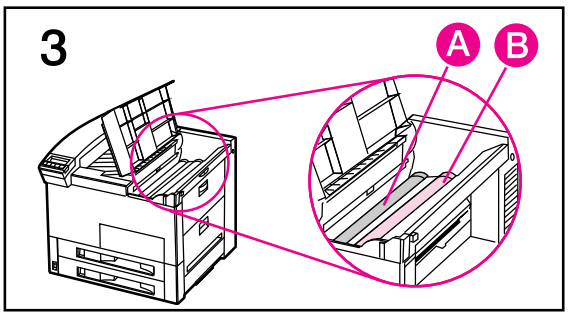
Caution

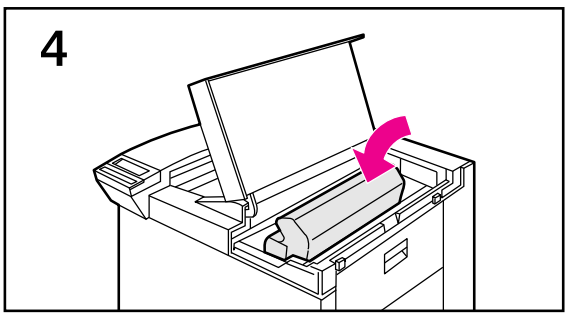
To avoid permanent damage to the toner cartridge, do not use ammonia-based cleaners on or around the printer.

Do not touch the transfer roller with your fingers. Contaminants on the roller can cause print quality problems.









Cleaning the Printer

1. *Before you begin these steps*, turn the printer OFF and unplug all cords.
2. Open the top cover of the printer and remove the toner cartridge.

WARNING!

Avoid touching the adjacent fusing area. It may be HOT.

Caution

Do not touch the transfer roller (A). Skin oils on the roller can reduce print quality. If toner gets on your clothes, wipe it off with a dry cloth and wash your clothes in *cold* water. Hot water sets toner into fabric.

3. With a *dry* lint-free cloth, wipe any residue from the paper path area, the registration roller (B), and the toner cartridge cavity. Use the brush supplied with the printer to remove residue from tight areas.
4. Replace the toner cartridge, close the printer, reconnect all cables, and switch the printer ON.

Table 4-1 Cleaning the Printer

Component	Cleaning Method/Notes
Outside Covers	Use a water-dampened cloth. Do not use solvents or ammonia-based cleaners.
Inside General	Use a dry, lint free cloth. Remove all dust, spilled toner, and paper particles.
Paper Pickup, Feed, and Retard Rollers	Use a water-dampened lint-free cloth.
Separation Pad	Use a dry lint-free cloth.
Registration Roller	Use a dry lint-free cloth.
Transfer Roller	Use a dry, lint-free cloth. DO NOT TOUCH with your fingers.
Fuser Assembly	Use a water-dampened lint-free cloth.

Cleaning Spilled Toner

Defective toner cartridges can develop leaks. Also, after a paper jam has occurred, there may be some toner remaining on the rollers and guides inside the printer. The pages that print immediately after the jam may pick up this toner.

Clean spilled toner with a cloth slightly dampened in cold water. Do not touch the Transfer Roller with the damp cloth or with your fingers. Do not use a vacuum cleaner unless it is equipped with a micro-fine particle filter.

Note

If toner gets on your clothing, use cold water to remove it. Hot water sets toner stains into fabric.

Preventative Maintenance

The user-conducted preventive maintenance cycle for this printer is every 350,000 images. The part numbers for the preventive maintenance kits are **C3971A** for the 100V printers, and **C3972A** for the 220V printers. The kits contain the following replacement parts: one Fusing Assembly, one Transfer Roller Assembly, and six Feed/Separation Rollers (two each for Trays 2, 3, and 4). Refer to Chapter 6 of this manual, and the instructions included in the kits for detailed replacement procedures.

The control panel message, PERFORM USER MAINTENANCE, indicates that the 350,000 maintenance is due. Upon completion of the maintenance procedures, go to the control panel Configuration Menu and set the SERVICE MESSAGE= to OFF.

Note

LaserJet 5Si HM (C3124A) has a 250,000 image user preventive maintenance interval due to heavy media usage.

Tray 2 and 3 Adjustment Procedure

The paper trays are mechanically aligned to the printer chassis at the factory. Perform this procedure ONLY if a paper tray has been replaced with a tray other than the original factory installed unit, or if the top margin of the image area is off-center more than 0.5 mm (0.02 in.) The adjustment procedure is identical for Trays 2 and 3.

Note

Before performing this procedure, check that the margins in your software application are properly set.

1. Load the paper tray being tested with letter or A4 size paper.
2. Perform a 1-sheet Paper Path Test from that tray (see Paper Path Test under Test Menu in Chapter 3).
3. Refer to Figure 4-1 and compare distance A to distance B.

Figure 4-1

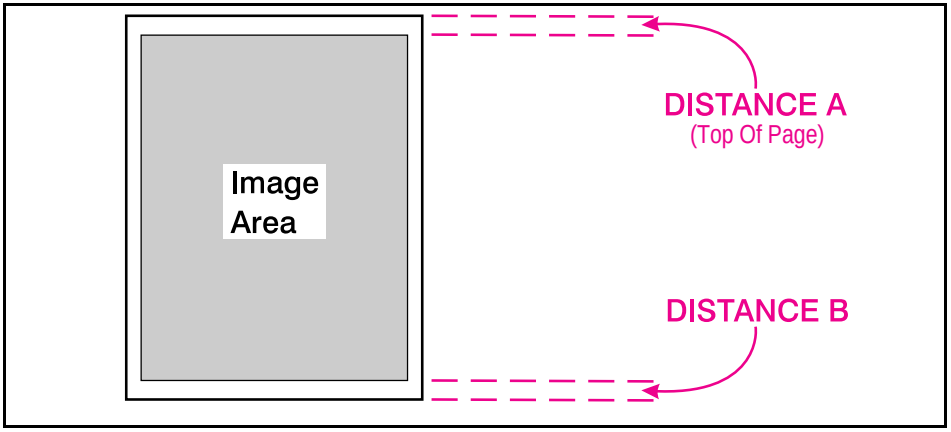
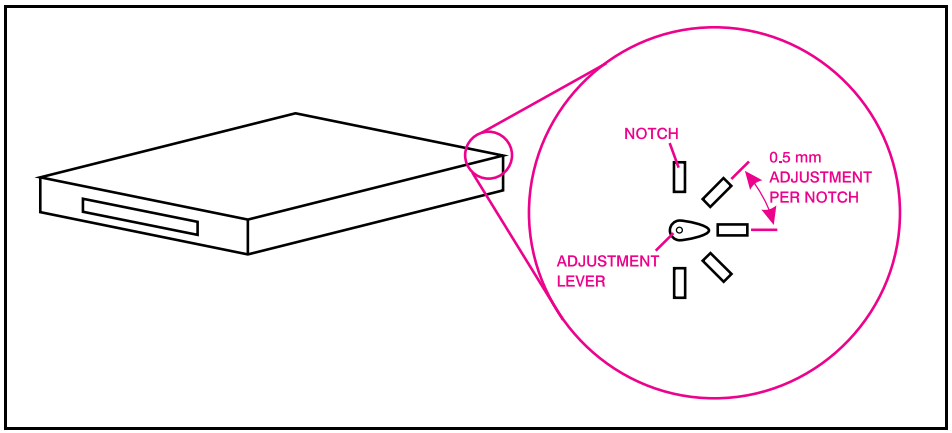


Image Area Margins

Note

Refer to Figure 4-2. Each adjustment notch changes the physical position of the tray by 0.5 mm (0.02 in). Moving the lever counter-clockwise moves the tray inward and increases distance A. Moving the lever clockwise moves the tray outward and decreases distance A.

Figure 4-2



Tray 2/3 Position Adjustment

4 If distance A is greater than distance B by more than 0.5 mm (0.02 in), move the adjustment lever clockwise one notch.

5 If distance A is less than distance B by more than 0.5 mm (0.02 in), move the adjustment lever counter-clockwise one notch.

6 After adjusting:

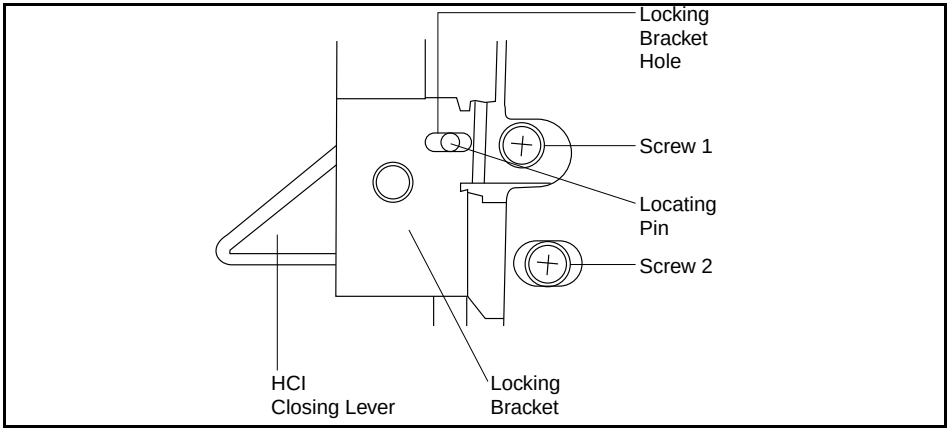
- Re-install the tray.
- Re-run the Paper Path Test.
- Recheck the measurements.
- Re-adjust as necessary.

Tray 4 Adjustment Procedure

In some cases, the registration from Tray 4 (HCI) causes print to start too close to the edge of the paper. This situation is not a typical occurrence. In most cases the Tray 4 offset is fine. Although this may or may not be within specification, it is unacceptable to some users. Perform the following adjustment procedure to correct the situation.

1 With the HCI stand-alone, remove left, right and rear covers from the HCI.
2 Remove the vertical transfer unit.
3 Open the HCI paper tray.
4 Loosen both screws that support the paper tray locking bracket on the right side of the HCI (see Figure 4-3).

Figure 4-3



5 Locate the bracket hole and pin at the middle (right side) (see Figure 4-3).
6 Slide the bracket so that the locating pin is positioned at the middle of the bracket hole.
7 Tighten both screws.
8 Loosen both screws that support the paper tray locking bracket on the left side of the HCI.
9 Locate the bracket hole and pin at the middle (left side).
Slide the bracket so the locating pin is positioned at the middle of the bracket hole.

(continued on next page)

10 Tighten both screws.

11 Reassemble the vertical transfer unit.

12 Make sure all the cables (vertical transfer unit and paper deck drive assembly) are reconnected.

13 Reinstall left, right, and rear covers to the HCI.

Note

The locating pin position at the middle could still be unacceptable for some customer's applications. If so, repeat the procedure by moving the locating pin further back and testing the margin obtained.

5

Functional Overview

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Basic Printer Functionality

This chapter presents a functional overview of the printer and the printing processes. The following topics, functions, and systems are discussed:

- Basic Printer Functionality
- Power Distribution System
- Formatter System
- DC Controller System
- Image Formation System
- Paper Paths and Components

Printer Functional Block Diagram

Figure 5-1 is a functional block diagram of the printer showing the basic paths for signal, control, and media.

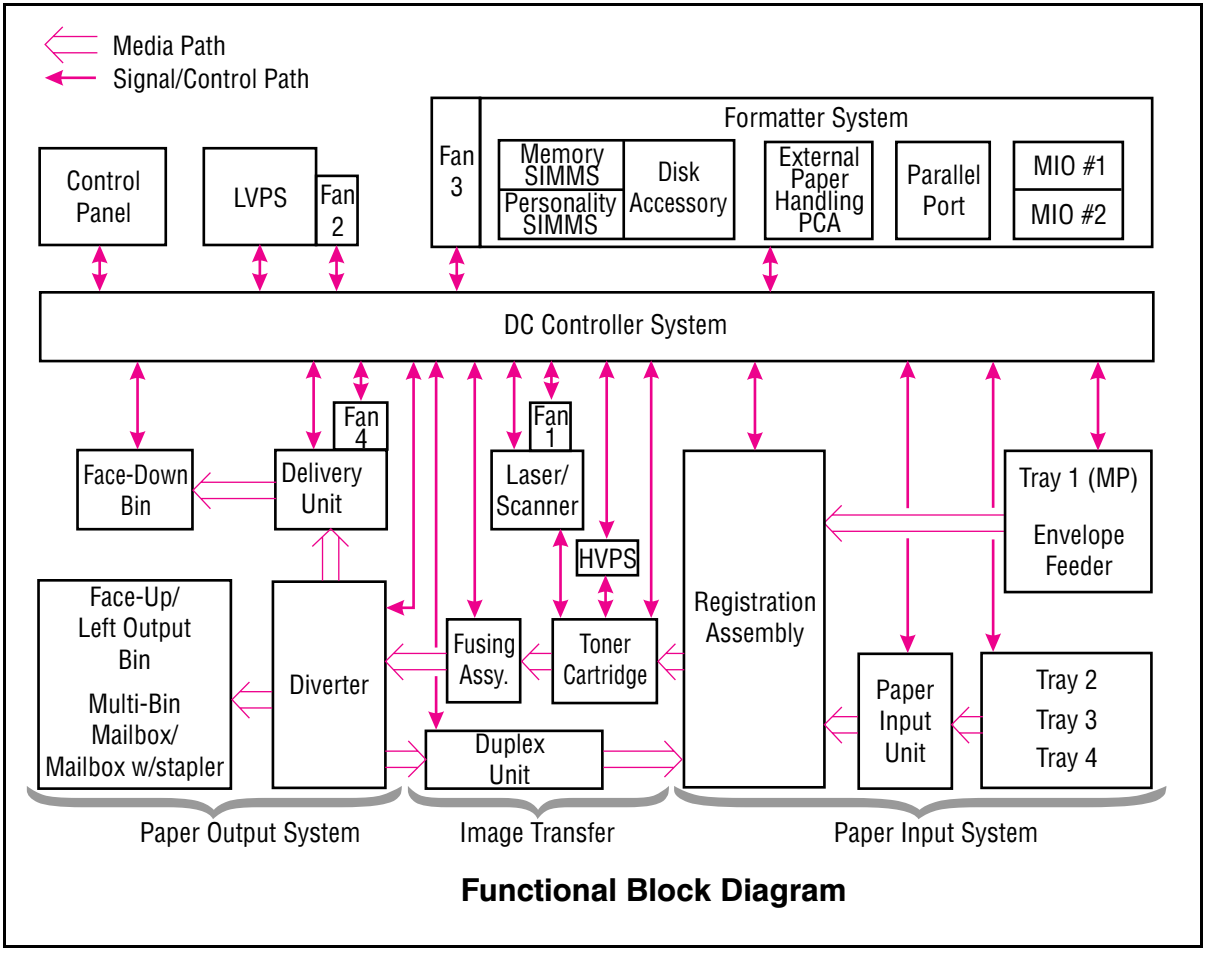


Figure 5-1 Printer Functional Block Diagram

Power Distribution System

The AC and DC power supply circuits are contained in the Low Voltage Power Supply (LVPS). The high voltages required for image formation are generated by the High Voltage Power Supply (HVPS). The Low Voltage Power Supply and Distribution System is illustrated in Figure 5-2. Refer to the Reference Diagrams at the end of Chapter 7 for more details.

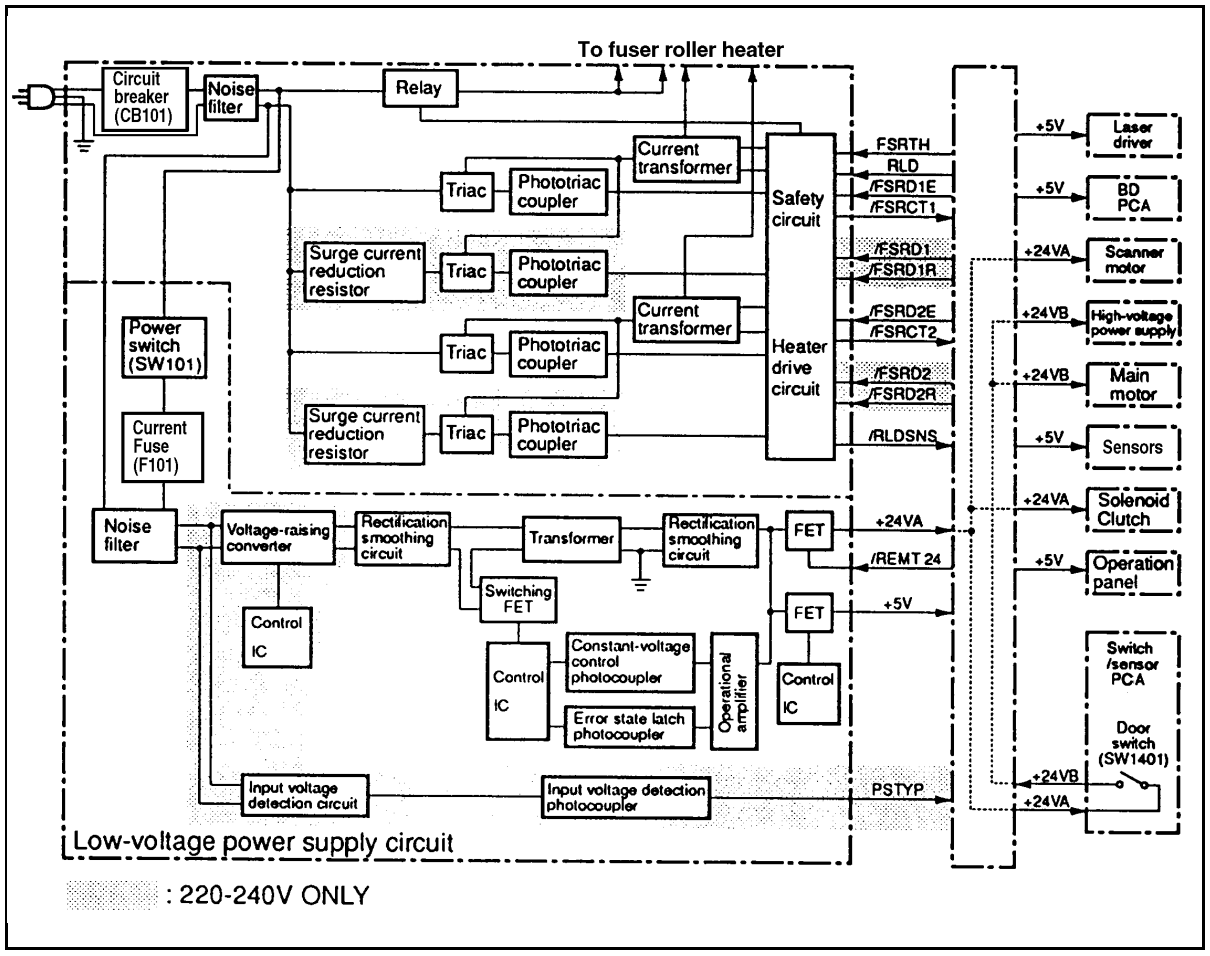


Figure 5-2 Low Voltage Power Distribution System

AC Power Distribution

The AC power circuitry supplies AC voltage whenever the power cord is connected, and the power switch is ON. A toner cartridge must be installed and the top access door must be closed before AC voltage is supplied to the DC power circuits or the Fusing Assembly.

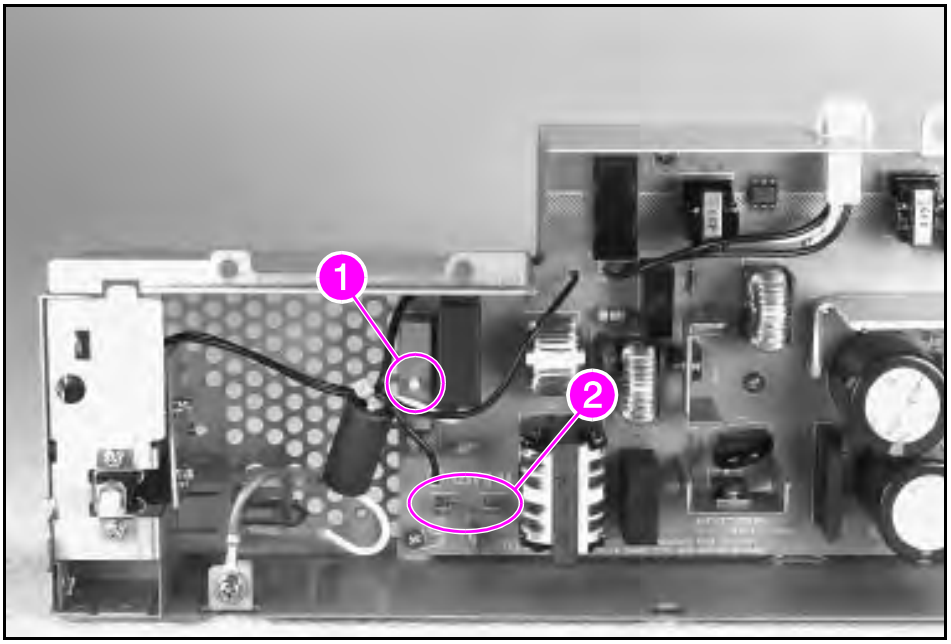
Overcurrent/Overvoltage Protection

There are two overcurrent/overvoltage devices in this printer:

The resettable circuit breaker (CB101) shuts off AC input power to the LVPS in case of an AC overcurrent condition. To reset, remove the LVPS and press in the circuit breaker button (Figure 5-3, callout 1).

Fuse 101 interrupts AC input power to the +24V DC and +5V DC power circuits. To check or replace the fuse (Figure 5-3, callout 2) you must remove the LVPS.

Figure 5-3



Low Voltage Power Supply

High Voltage Power Distribution

The High Voltage Power Supply (HVPS, see Figure 5-4) applies a DC biased AC voltage to the primary charging roller and the developing roller, and a programmed DC voltage (depending upon the phase of the printing process) to the Transfer Roller. Refer to the General Timing Diagram (Figure 5-22) at the end of this chapter for HVPS timing information.

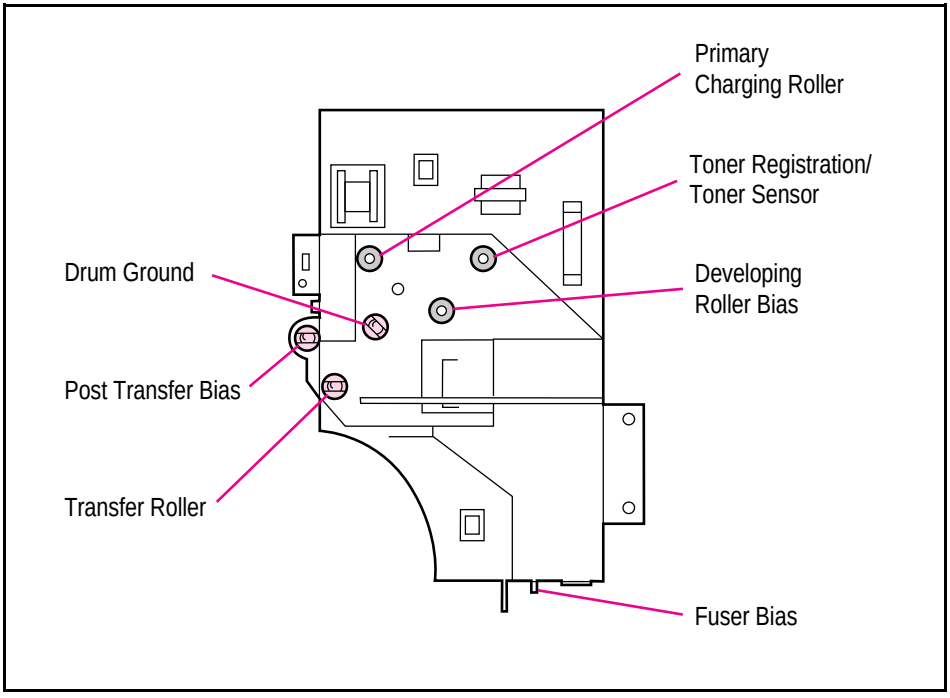
Toner Cartridge Detection

A toner level detector inside the toner cartridge is connected to the HVPS when the toner cartridge is installed. If the toner level drops below a predefined level, the TONER LOW message will appear on the display panel. If the toner cartridge is missing, INSTALL TONER CARTRIDGE will be displayed.

Print Density Adjustment

The HVPS also controls the image density by varying the voltages applied to the developing cylinder in the toner cartridge. These voltages determine the amount of toner applied to the photosensitive drum. Print density is adjusted from the control panel (Print Quality Menu), or from the driver software.

Figure 5-4



High Voltage Power Supply Contacts

Formatter System

The Formatter PCA is responsible for the following:

- Controlling the PowerSave mode.
- Receiving and processing print data from the various printer interfaces.
- Monitoring Control Panel inputs and relaying printer status information (through the Control Panel and the Bi-Directional I/O).
- Developing and coordinating data placement and timing with the print engine.
- Storing font information.
- Communicating with the host computer through the Bi-Directional Interface.

The Formatter PCA receives a print job from the Bi-Tronics Interface and separates it into image information and instructions which control the printing process. The DC Controller synchronizes the Image Formation System with the Paper Input and Output Systems, and then signals the Formatter to send the print image data. The Formatter sends the print image data (dots) in the form of a VIDEO signal to start the printing process.

The Formatter PCA also provides the electrical interface and mounting locations for two MIO cards, additional memory SIMMs, the PostScript SIMM, the Disk Accessory, and the External Paper Handling controller PCA for the 2000-Sheet Input Unit, and the Multi-Bin Mailbox/Mailbox With Stapler.

PowerSave

This user-adjustable feature (Configuration Menu) conserves power by shutting down the fuser and exhaust fans after the printer has been idle for 15 minutes, 30 minutes, 1, 2, or 3 hours. A 10 second interval is also available in Service Mode. The printer retains all printer settings, downloaded fonts, and macros while in PowerSave mode. The default setting is PowerSave ON, with a 1-hour idle time. (PowerSave can also be turned OFF from the control panel.)

The printer exits PowerSave mode and enters the warm up cycle when any of the following occurs:

- A print job, valid data, or a PML or PJL command is received at the parallel port or an MIO card.
- A Control Panel key is pressed.
- When any printer door (except the front access door) is opened and then closed.
- A paper tray is opened and then closed.
- When the Engine Test microswitch is pressed.

Note Printer error messages override the PowerSave message. The printer will enter PowerSave mode at the appropriate time, but the error message will continue to be displayed.

Resolution Enhancement (REt)

The Formatter PCA contains circuitry for Resolution Enhancement technology (REt), which modifies the standard video dot data on its way to the DC Controller to produce “smoothed” black-to-white boundaries. REt is user-controllable (ON or OFF) from the control panel, or from some software applications. The default setting is ON.

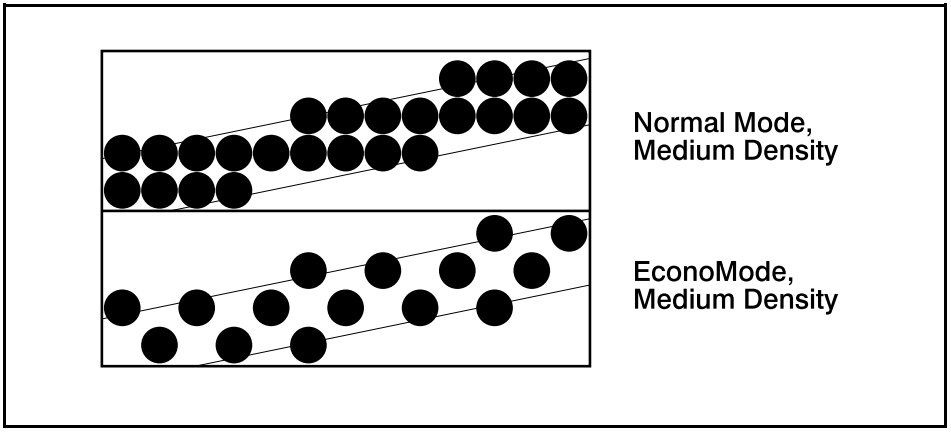
Note REt settings sent from software applications or printer drivers override the control panel settings.

EconoMode

The EconoMode setting uses approximately 75% less toner than standard mode printing by reducing the dot density. However, EconoMode does not extend toner cartridge component life. EconoMode, which can also be thought of as “draft mode,” is user selectable via the control panel (Print Quality Menu) and some software applications. The default setting is OFF.

Note EconoMode does not affect print speed, memory usage, or extend toner cartridge life.

Figure 5-5



Normal Mode vs EconoMode

DC Controller System

The following systems and functions are controlled by the DC Controller PCA:

- DC Power Distribution (+5V DC, +12V DC, +24V DC)
- Laser and Scanner Drive
- Paper Motion Monitoring and Control (photosensors and flags)
- Clutches (registration, tray pickup, and Tray 1 feed)
- Engine Test
- Motors (Main Drive, Scanner, and Fans)

Figure 5-2 shows the Low Voltage Power Supply and Distribution System. Refer to the wiring diagrams at the end of Chapter 7 for detailed listings of the DC Controller inputs and outputs.

Laser and Scanner Drive

Based on information received from the Formatter, the DC Controller sends signals to the Laser/Scanner Assembly to modulate the laser diode ON and OFF, and to drive the Laser/Scanner motor. Refer to "Image Formation System" later in this chapter for more information.

Paper Motion Monitoring and Control

The DC Controller PCA controls paper motion by continuously monitoring the various paper sensors, and coordinating paper movement with the other print processes.

Clutches

The drive signals for the Registration Assembly Clutch (CL1), Paper Input Unit Clutch (CL2), and the Tray 1 Feed Clutch, are provided by the DC Controller PCA. The control signals for the clutches in the 2000-Sheet Input Unit and Multi-Bin Mailbox/Mailbox With Stapler are provided by the External Paper Handling PCA mounted on the Formatter Assembly.

Engine Test Microswitch

The Engine Test Microswitch, located on the DC Controller PCA, is activated manually through the square access hole at the right rear of the printer (see Figure 6-4). This switch causes the print engine to perform an internal self test diagnostic which bypasses the Formatter PCA and then prints a full page of black parallel lines. This test is useful for troubleshooting printer problems because it isolates the print engine from the Formatter PCA. The engine test printout prints from Tray 3 and can be activated with the Formatter PCA removed. For more information, see Engine Test in Chapter 7.

Motors

Refer to the General Timing Diagram (Figure 5-22) at the end of this chapter for specific timing details for the printer motors.

The Main Motor**, MT1** is controlled by the DC Controller PCA. The Main Motor drives the Main Gear Assembly and rotates during the Initial Rotation period (following power-ON), the Print period, the Last Rotation Period, or whenever the printer front door is opened and closed.

The Scanner Motor is controlled and monitored by the DC Controller. It rotates the scanner mirror during the Initial Rotation period and the Print period.

The Fan Motors are controlled and monitored by the DC Controller PCA. All four fans operate at full speed during the printing modes. All four fans turn off in the PowerSave mode after the Fuser cools down.

The drive signal for the Tray 2 and 3 Paper Pick-up Motor**, SMT1**, is provided by the DC Controller PCA through the PIU PCA mounted on the right side of the Paper Input Unit (PIU). When the job instructions call for paper to be supplied by Tray 2, SMT1 rotates in a forward direction and drives the Pick-Up roller for Tray 2. When paper is supplied by Tray 3, SMT1 rotates in the reverse direction and drives the Pick-Up roller for Tray 3.

Image Formation System

Laser printing requires the interaction of several different technologies (such as electronics, optics, and electrophotographics) to provide a printed page. Each process functions independently and must be coordinated with the other printer processes. The image formation process consists of six steps:

1. Drum Cleaning
2. Drum Conditioning
3. Image Writing
4. Image Developing
5. Image Transferring and Media Separation
6. Image Fusing

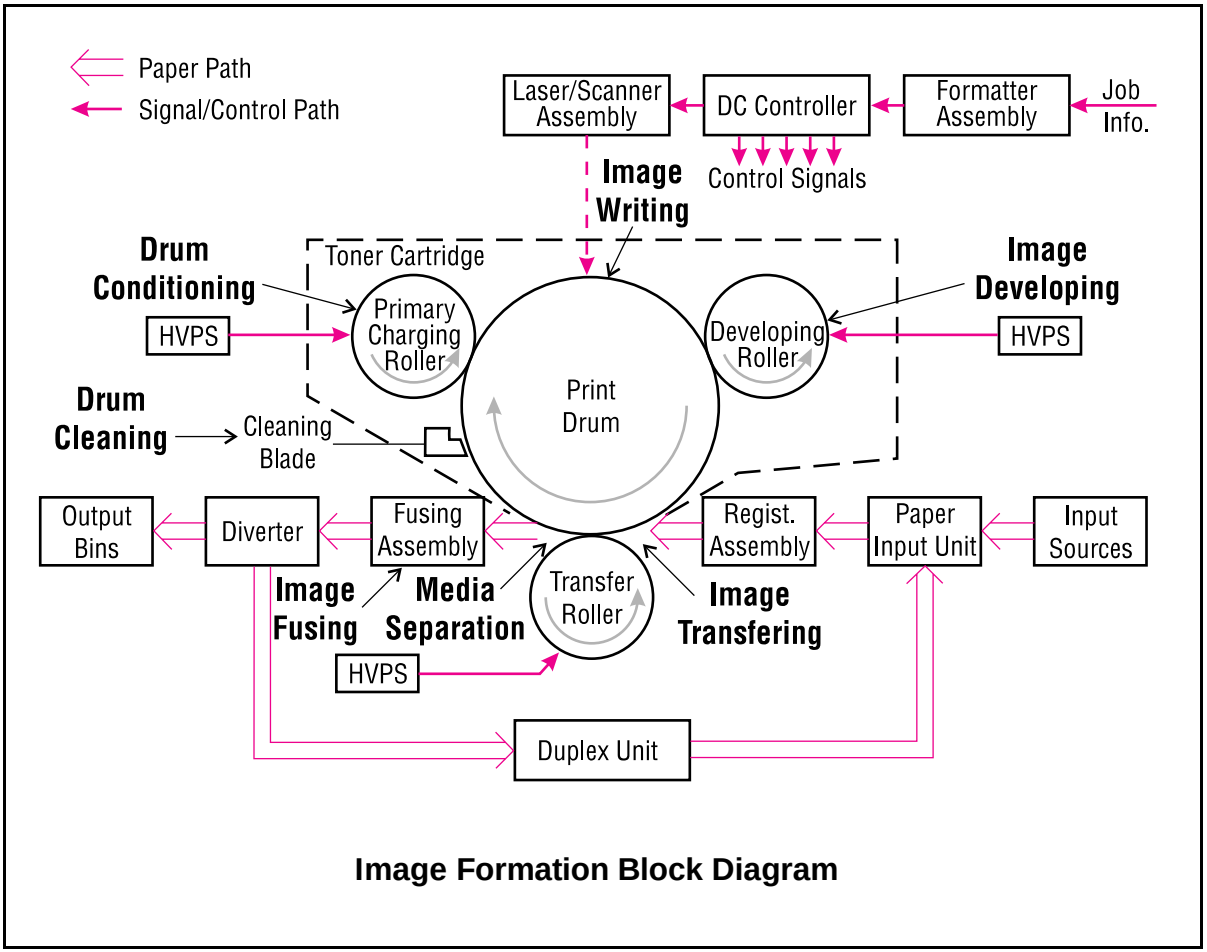


Figure 5-6 Image Formation Block Diagram

Toner Cartridge

The toner cartridge is the “heart” of the Image Formation System. It houses the cleaning, conditioning, and developing steps of the process. The toner cartridge contains the photosensitive drum, primary charging roller, developing station, toner cavity, and cleaning station. Including the components that wear, degrade, or are consumed in a customer replaceable toner cartridge eliminates the need for a service call when replacement is required.

Toner Cartridge/High Voltage Power Supply Contacts

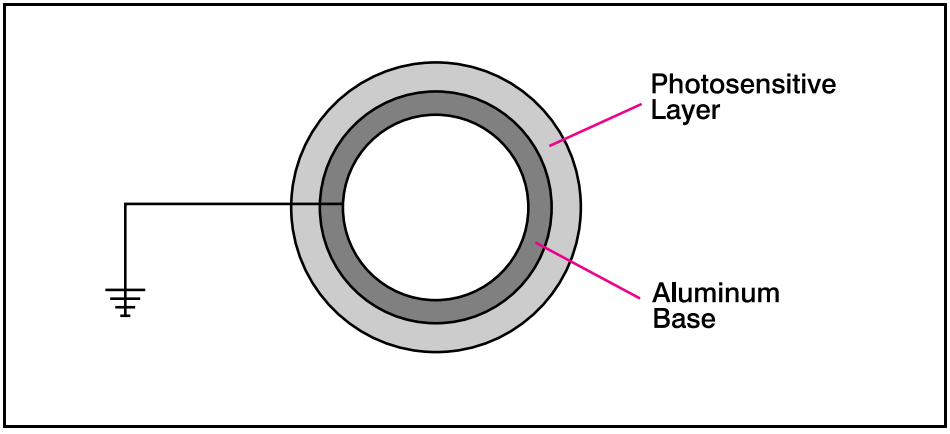
The toner cartridge has three contacts which route voltage from the HVPS PCA. They are:

- Upper: Primary Charge
- Middle: Developing Bias
- Lower: Toner Sensing/Toner Recognition

The Photosensitive Drum

The image from the Laser/Scanner Assembly is written on the drum surface, developed, and transferred to the media. The drum is an aluminum cylinder. The aluminum base of the photosensitive drum is electrically connected to ground potential. The outside of the cylinder is coated with a layer of non-toxic organic-photoconductive material (OPC). The OPC material becomes electrically conductive when exposed to light. The drum surface is first cleaned of excess toner, then conditioned with a uniform negative charge. When an area on the drum surface is exposed to the laser light beam, the negative charge in that area is conducted to the ground potential of the drum base and thus becomes more positive. Areas not exposed to light remain non-conductive and maintain their negative charge.

Figure 5-7

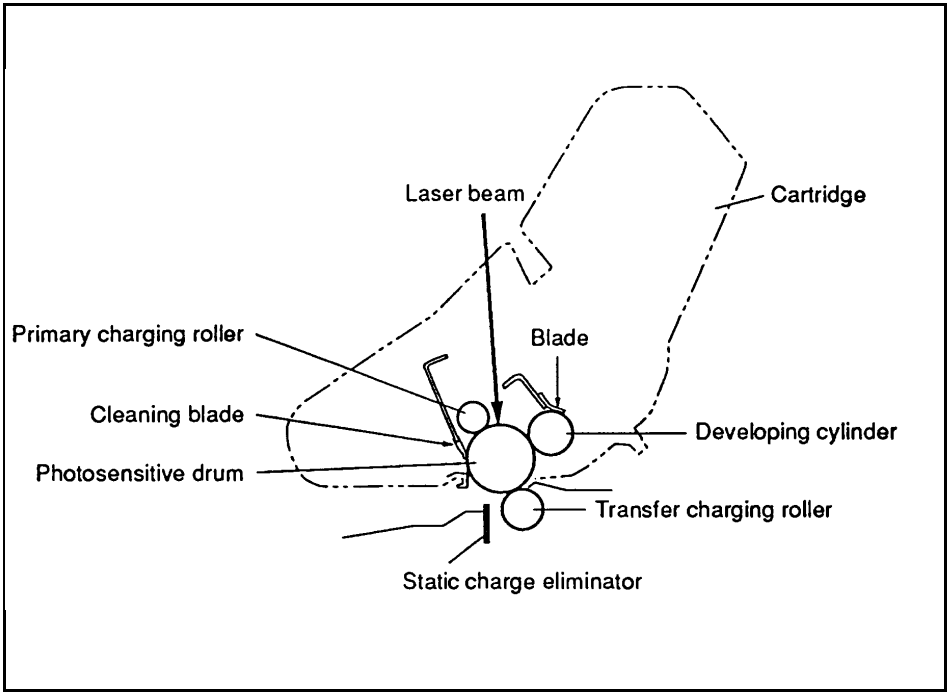


Photosensitive Drum

Drum Cleaning

The cleaning blade inside the toner cartridge is in contact with the surface of the drum at all times. As the drum rotates during printing, excess toner is removed from the drum surface and stored in the waste toner receptacle inside the toner cartridge.

Figure 5-8

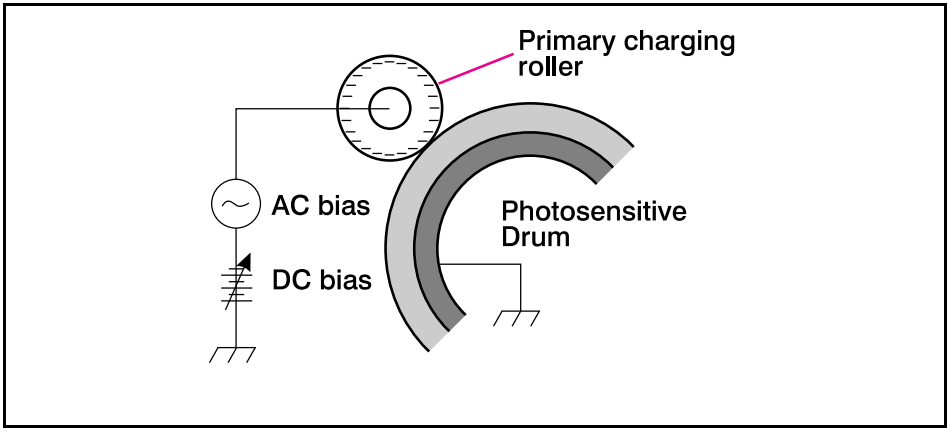


Drum Cleaning

Drum Conditioning

After the drum is physically cleaned, it is conditioned by applying a uniform negative charge across the surface of the drum with the primary charging roller, located in the toner cartridge. The primary charging roller is coated with conductive rubber, charged with an AC current which erases any residual charges, and produces a uniform drum surface potential. The AC current is centered around a negative DC bias which changes according to the Print Density setting.

Figure 5-9



Primary Charging Roller

Image Writing

During the writing process, a modulated laser diode projects a beam onto a rotating six-sided scanning mirror. As the scanning mirror rotates, the beam is directed through a set of focusing lenses to a direction changing mirror which reflects it through a slot on the top of the toner cartridge, and onto the photosensitive drum. The beam sweeps across the drum and discharges the negative potential wherever it strikes the surface. This creates a latent (invisible) electrostatic image, which is developed into a visible image as the drum rotates (see Figure 5-10).

Figure 5-10

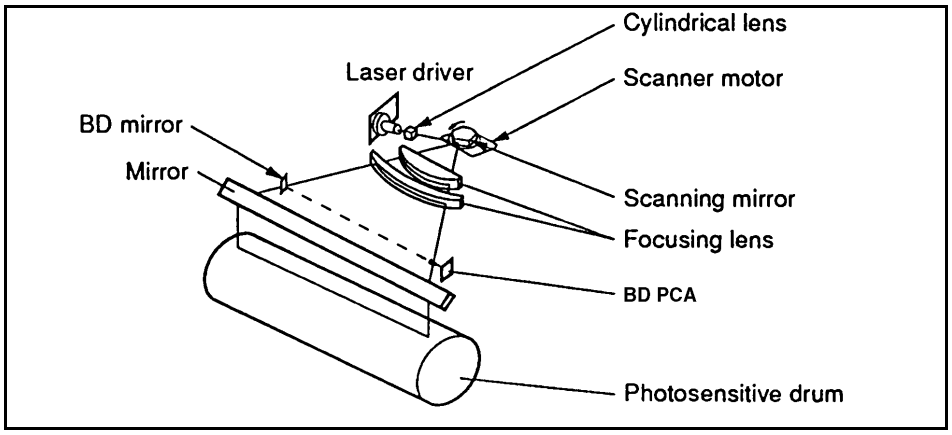


Image Writing

Because the beam is sweeping the entire length of the drum and the drum is rotating, the entire surface area of the drum can be covered. The speed of the scanner motor (which turns the scanning mirror) and the speed of the main motor (which turns the drum) are synchronized, and each successive sweep of the beam is offset 1/600th of an inch. The beam can be turned on and off to place a dot of light every 1/600th of an inch. This is how the printer achieves its 600 x 600 dpi resolution. After the writing process, the drum surface has a latent (invisible) electrostatic image.

At the end of each sweep, the beam strikes the beam detect lens, generating the Beam Detect Signal (BD). The BD signal is sent to the DC Controller, where it is converted to an electrical signal used to synchronize the output of data (VDO) for one sweep (scan line) and to diagnose problems with the laser diode or scanner motor.

Image Developing

The developing process changes the latent electrostatic image into a visible image by depositing negatively charged toner particles on the exposed areas of the drum. The developing station is located inside the toner cartridge and consists of a metallic cylinder that rotates around a fixed magnetic core.

The developing cylinder is charged with an AC current that is centered around a negative DC bias. The AC current improves density and contrast by decreasing the attraction between the toner particles and the magnetic core of the cylinder. This increases the repelling action of the toner against the areas of the drum not exposed to laser light. The negative DC bias applied to the developing cylinder is also changed according to the Print Density setting. Both the primary charging roller and developing cylinder DC bias voltages are changed in response to the density setting. These changes in DC bias cause either more or less toner to be attracted to the drum, thus increasing or decreasing print density.

The toner is a powdery substance made of black plastic resin bound to iron particles. The toner particles are attracted to the magnetic core of the developing cylinder. A rubber blade "brushes" the toner on the developing cylinder to a uniform thickness.

The toner particles obtain a negative static charge by rubbing against the developing cylinder which is charged with a negative DC bias. The negatively charged toner is attracted to the discharged (exposed, more positive) areas of the drum, and repelled from the negatively charged (non-exposed) areas.

Figure 5-11

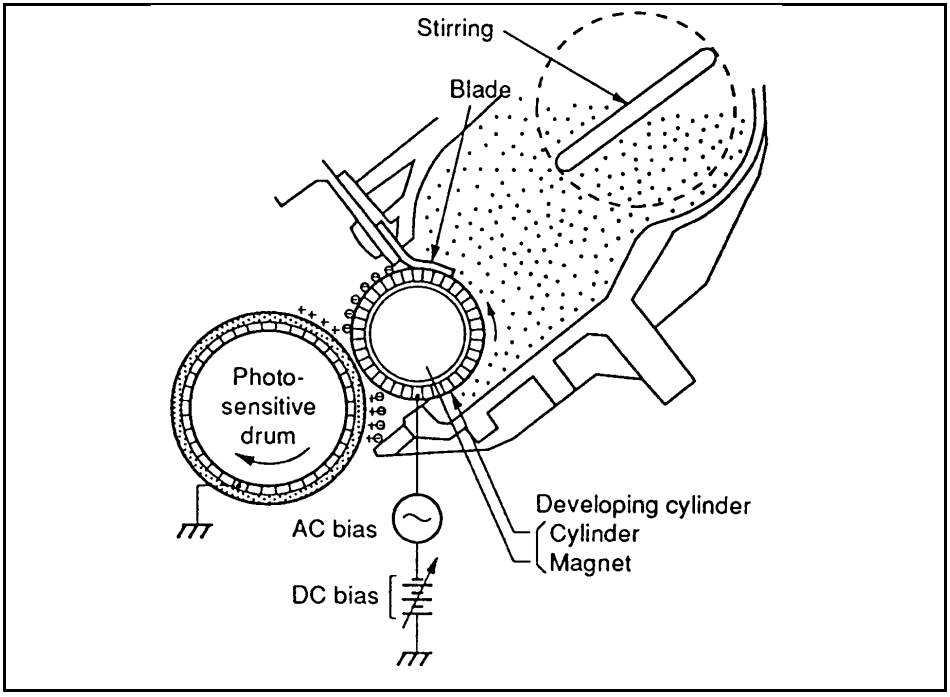


Image Development

Image Transferring and Media Separation

During the image transferring process, the toner image on the drum surface is transferred to the media. A positive charge applied to the back of the media by the transfer roller, causes the negatively charged toner particles on the drum surface to be attracted to the media.

The small diameter of the drum, combined with the stiffness of the media cause the media to separate easily from the drum. The static eliminator teeth also help separate the paper from the drum. The static eliminator teeth weaken the attractive forces between the negatively charged drum surface and the positively charged paper. This action keeps thin media from wrapping around the drum. After separation, the drum is cleaned and conditioned for the next image.

Figure 5-12

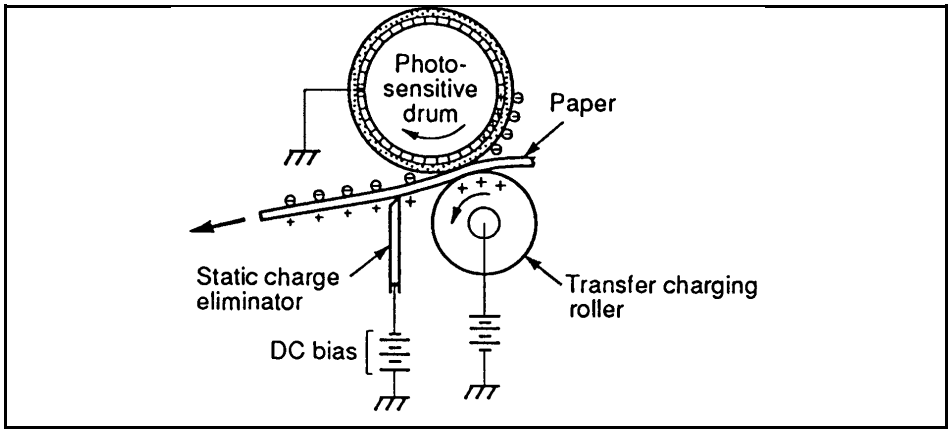


Image Transferring and Media Separation

Image Fusing

The Fusing Assembly bonds the toner particles into the media with a heated fusing roller and a soft pressure roller. There are two levers on the Fusing Assembly which adjust roller pressure for single sheets (down position), or envelopes (up position). Both levers must be set to the same position.

The fusing roller contains two quartz-halogen lamps that provide heat for the fusing process. Fusing temperature is monitored by the DC Controller PCA, via thermistor TH1. The DC Controller maintains a temperature of about 190° C during print mode. If the fusing system overheats (about 230° C) TH1 opens, interrupting power to the fusing heater, causing a 50.X FUSER ERROR. If the fusing system exceeds 240° C, the thermal fuse opens, moving power away from the fuser.

Figure 5-13

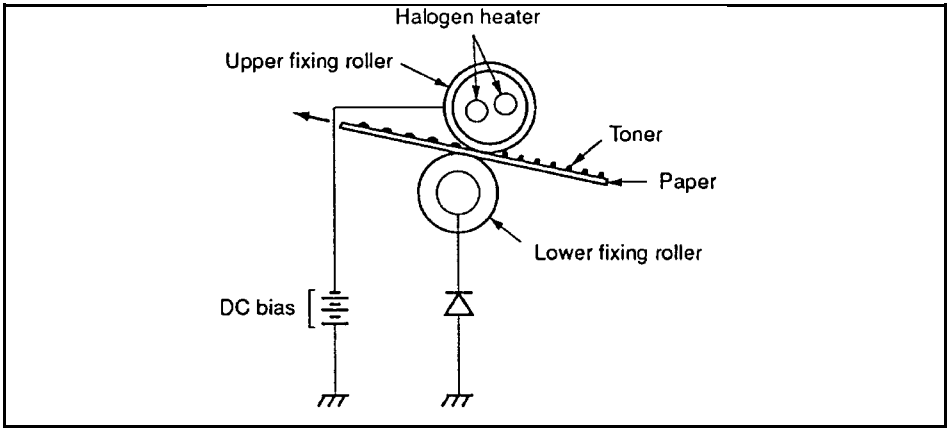


Image Fusing

Paper Paths and Components

Printer, Duplex Unit, and Envelope Feeder

The components of the printer paper path are illustrated in Figure 5-14. Figure 5-15 and Table 5-1 illustrate and describe all of the printer sensors, solenoids, clutches, motors, and fans.

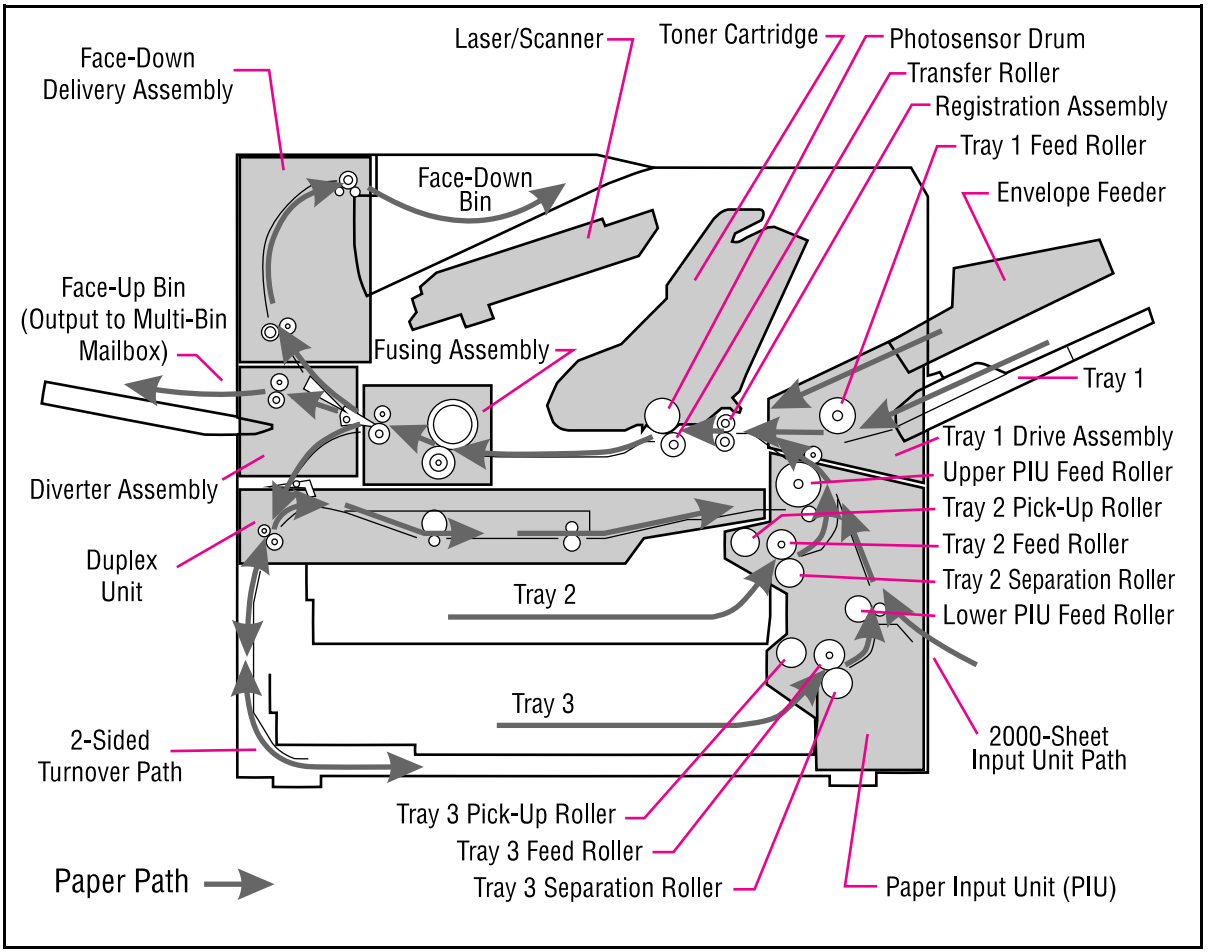


Figure 5-14 Printer Paper Paths

Table 5-1 Printer Sensors, Solenoids, Clutches, Motors, and Fans

Control Device	Title	Location
CL1	Registration Clutch	PIU (right side)
CL2	Paper Input Unit Feed Clutch	PIU (right side)
CL3	Tray 1 Feed Clutch	Tray 1 Drive Unit
Fan 1	Laser/Scanner Fan	Under Top Cover
Fan 2	LVPS Fan	LVPS
Fan 3	Formatter Fan	Below Formatter
Fan 4	Face-Down Delivery Unit Fan	Under Top Cover
MT1	Main Motor	Behind HVPS
PS1	Registration Paper Sensor	Registration Assembly (center)
PS2	Paper Input Unit Paper Sensor	Paper Input Unit (top, center)
PS1201	Tray 3 Paper Present Sensor	Paper Input Unit PCA
PS1202	Tray 2 Paper Present Sensor	Paper Input Unit PCA
PS1203	Tray 3 Paper Level Sensor 1	Paper Input Unit PCA
PS1204	Tray 3 Paper Level Sensor 2	Paper Input Unit PCA
PS1205	Tray 2 Paper Level Sensor 1	Paper Input Unit PCA
PS1206	Tray 2 Paper Level Sensor 2	Paper Input Unit PCA
PS1207	Tray 3 Paper Out Sensor	Paper Input Unit PCA
PS1208	Tray 2 Paper Out Sensor	Paper Input Unit PCA
PS1301	Tray 1 Paper Present Sensor	Tray 1 Drive Unit PCA
PS1302	Tray 1 Lifting Plate Position Sensor	Tray 1 Drive Unit PCA
PS1401	Face-Down Bin Full Sensor	Switch/Sensor PCA
PS1402	Face-Down Bin Delivery Sensor	Switch/Sensor PCA
PS1403	Fuser Delivery Sensor	Switch/Sensor PCA
SL1	Tray 2 and 3 Paper Pick-up Solenoid	PIU (right side)
SL2	Tray 1 Lifting Plate Solenoid	Tray 1 Drive Unit
SL3	Face-Up Bin Delivery Solenoid	Left Rear Corner of Chassis (behind diverter door)
SMT1	Tray 2 and 3 Paper Pick-up Motor	PIU (right side)
SW1401	Doors Open Switch	Switch/Sensor PCA
Tray 2, SW1601	Tray 2, Paper Size Sensing Switch	Behind LVPS
Tray 2, SW1602	Tray 2, Paper Size Sensing Switch	Behind LVPS
Tray 2, SW1603	Tray 2, Paper Size Sensing Switch	Behind LVPS
Tray 2, SW1604	Tray 2, Paper Size Sensing Switch	Behind LVPS
Tray 3, SW1601	Tray 3, Paper Size Sensing Switch	Behind LVPS
Tray 3, SW1602	Tray 3, Paper Size Sensing Switch	Behind LVPS
Tray 3, SW1603	Tray 3, Paper Size Sensing Switch	Behind LVPS
Tray 3, SW1604	Tray 3, Paper Size Sensing Switch	Behind LVPS

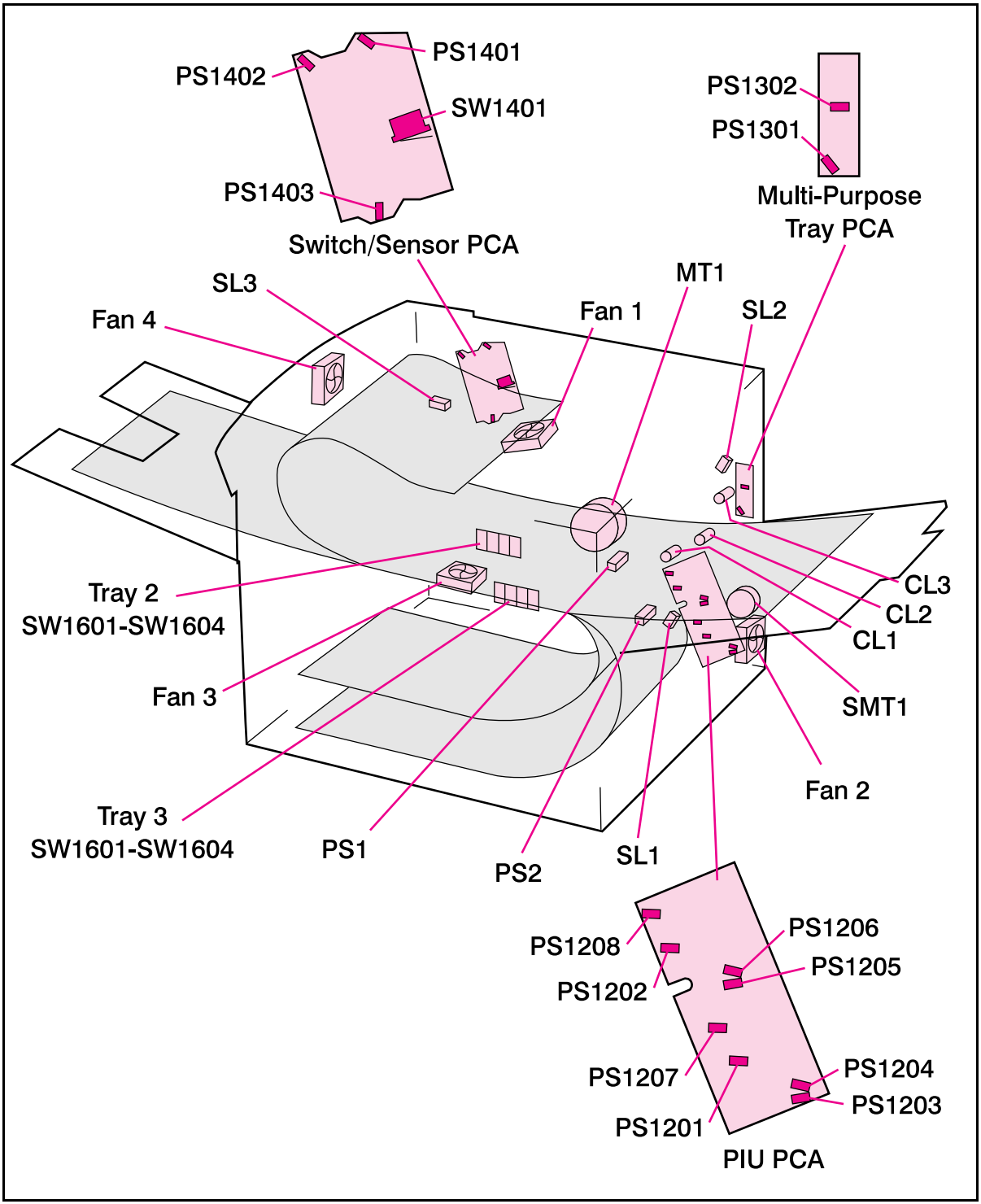


Figure 5-15 Printer Sensors, Solenoids, Clutches, Motors, and Fans.

2000-Sheet Input Unit (Tray 4) Components

The components of the 2000-Sheet Input Unit paper path are illustrated in Figure 5-16. Figure 5-17 and Table 5-2 illustrate and describe all of its sensors, switches, clutches, and motors.

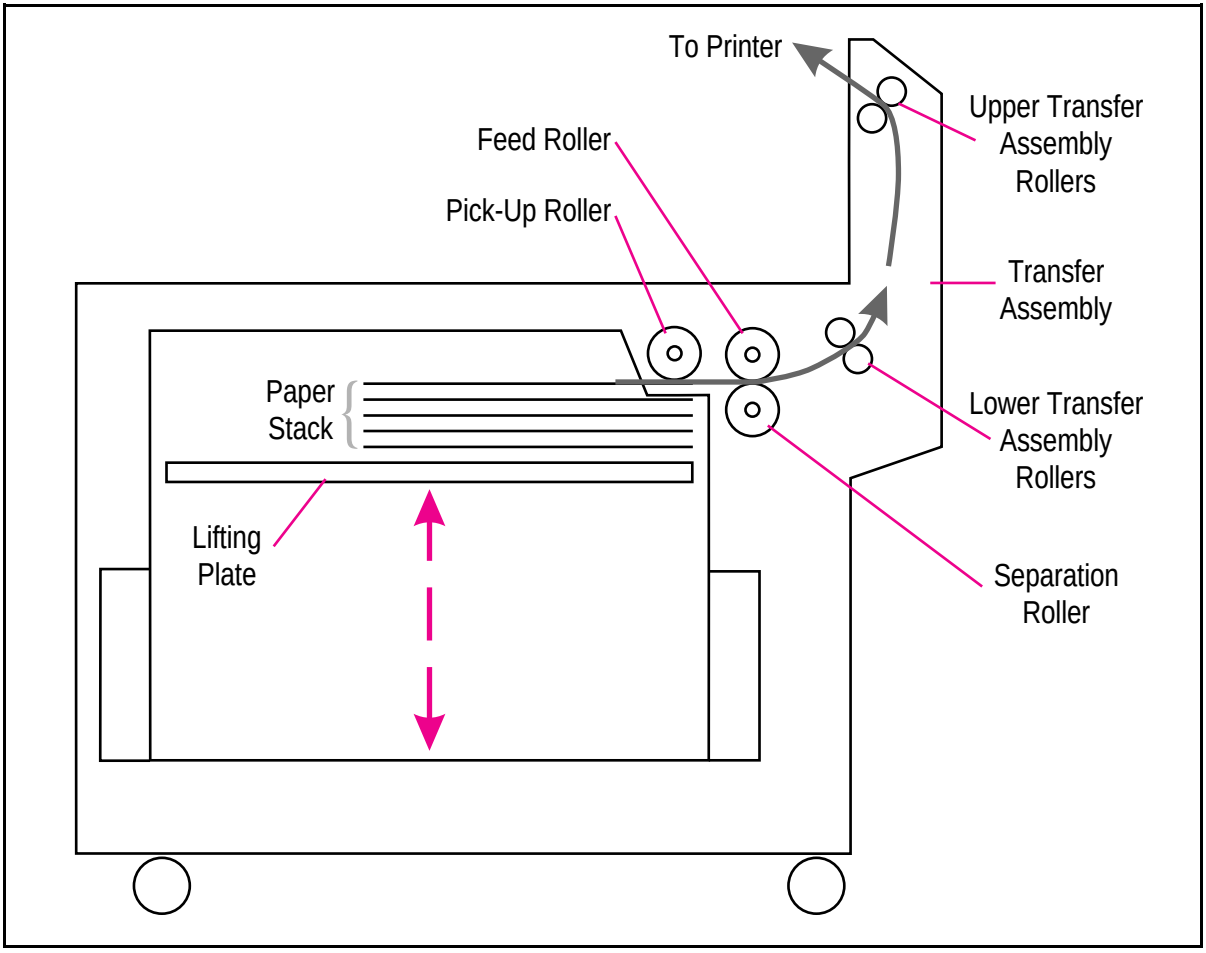


Figure 5-16 2000-Sheet Input Unit Paper Path

Table 5-2 2000-Sheet Input Unit Sensors, Switches, Clutches, and Motors

Control Device	Title	Location
CL31	Transfer Assembly Clutch	Transfer Assembly
CL32	Main Drive Clutch	Lower Chassis (behind Back Cover)
MT31	Main Motor	Lower Chassis (behind Back Cover)
PS31	Paper Entry Sensor	Transfer Assembly
PS32	Paper Exit Sensor	Transfer Assembly
PS33	Paper Tray Empty Sensor	Paper Pick-Up Assembly
PS34	Paper Tray Raised Sensor	Paper Pick-Up Assembly
PS35	Transfer Assembly Closed Sensor	Paper Pick-Up Assembly
SW31	Lifter Sensing Switch	Upper Chassis (above Paper Tray)
SW601, SW602	Paper Quantity Switches	Lower Chassis (behind Back Cover)
SW701-SW704	Paper Size Switches	Lower Chassis (behind Back Cover)

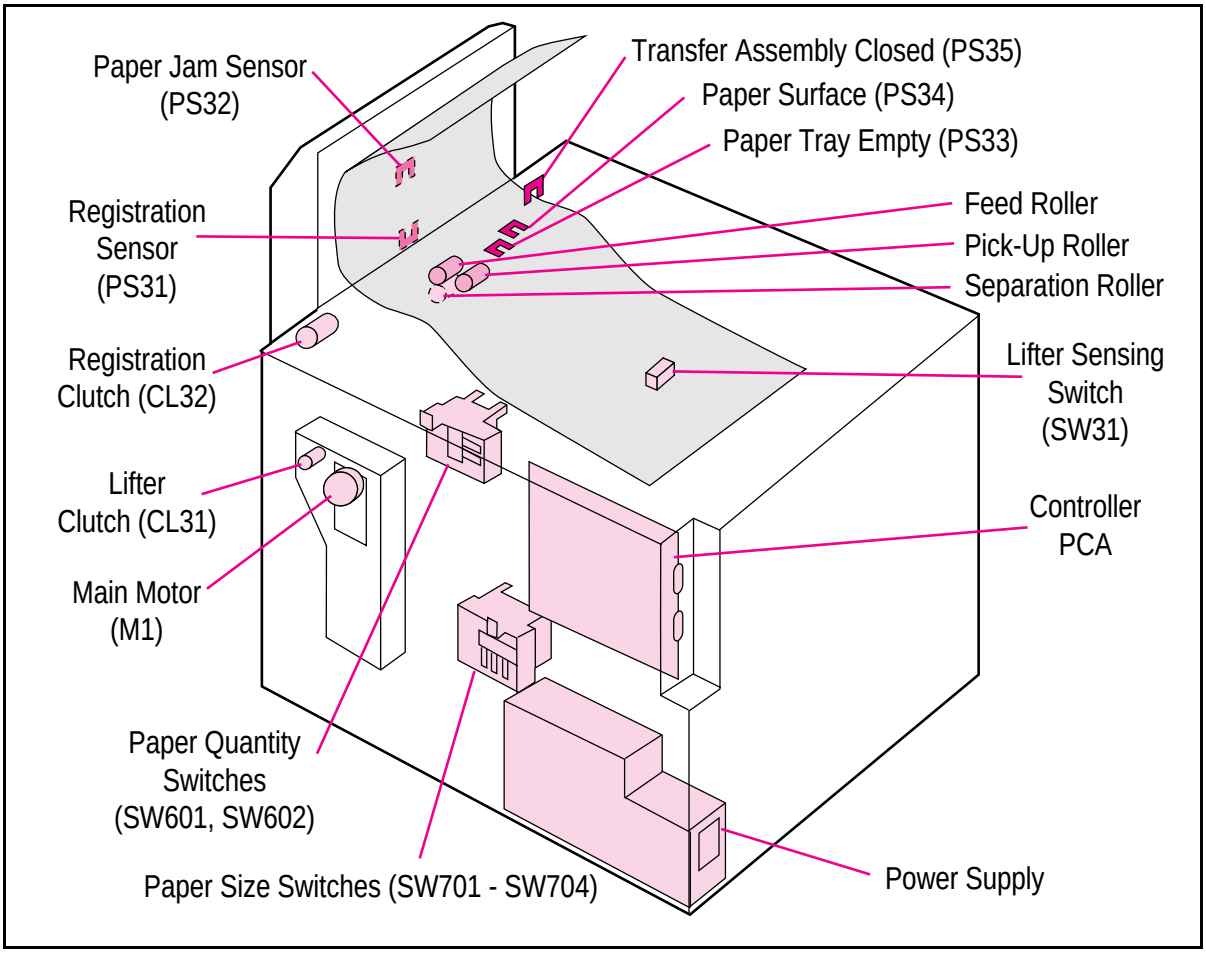


Figure 5-17 2000-Sheet Input Unit Sensors, Switches, Clutches, and Motors

2000-Sheet Input Unit Operation

All communication and control of the 2000-Sheet Input Unit (and the Multi-Bin Mailbox/Mailbox With Stapler) is through the External Paper Handling (EPH) PCA mounted on the Formatter Assembly. These instructions are sent to the 2000-Sheet Input Unit controller PCA located behind the back cover. The main components of the 2000 Sheet Input Unit and their functions are listed in Table 5-2. Power is provided to the 2000-Sheet Input Unit by an internal power supply located behind the back cover.

When the Tray 4 paper tray has been loaded and closed, the paper stack is lifted into position (sensed by PS34) under the pickup, feed and separation rollers. If PS34 is not activated within a predetermined time, a 66.x.yy DEVICE ERROR message will appear on the printer control panel display. Presence of paper in the tray is detected by PS33. Switches SW601 and SW602 detect the amount of paper remaining in the tray (refer to Table 5-3. Switches SW701-704 perform two functions: they sense the size of paper installed in the tray (refer to Table 5-4, and they determine that the paper tray is properly closed.

When the printer calls for paper from Tray 4, the Pickup, Feed, and Separation rollers rotate to pick up and feed one sheet to the registration roller in the Transfer Assembly. The controller PCA monitors the timing of sensors PS31 and PS32 to determine that paper is moving normally. If a jam occurs, a 13.x PAPER JAM message will appear on the control panel display.

Switch SW31 is a safety device to prevent breakage of the paper lifting mechanism due to improper or excessive paper loading.

Table 5-3 2000-Sheet Input Unit Paper Quantity Switches

SW601	SW602	Remaining Paper
ON	ON	100%
OFF	ON	75%
OFF	OFF	50%
ON	OFF	25%

Table 5-4 2000-Sheet Input Unit Paper Size Switches

Paper Size	SW701	SW702	SW703	SW704
Ledger (portrait)	OFF	ON	OFF	OFF
A3 (portrait)	ON	ON	OFF	OFF
B4 (portrait)	OFF	OFF	ON	OFF
Legal (portrait)	OFF	ON	ON	OFF
Letter (landscape)	OFF	ON	OFF	ON
A4 (landscape)	OFF	ON	OFF	ON

Multi-Bin Mailbox Components

The components of the Multi-Bin Mailbox paper path are illustrated in Figure 5-18. Figure 5-19 and Table 5-5 illustrate and describe all of its sensors and motors.

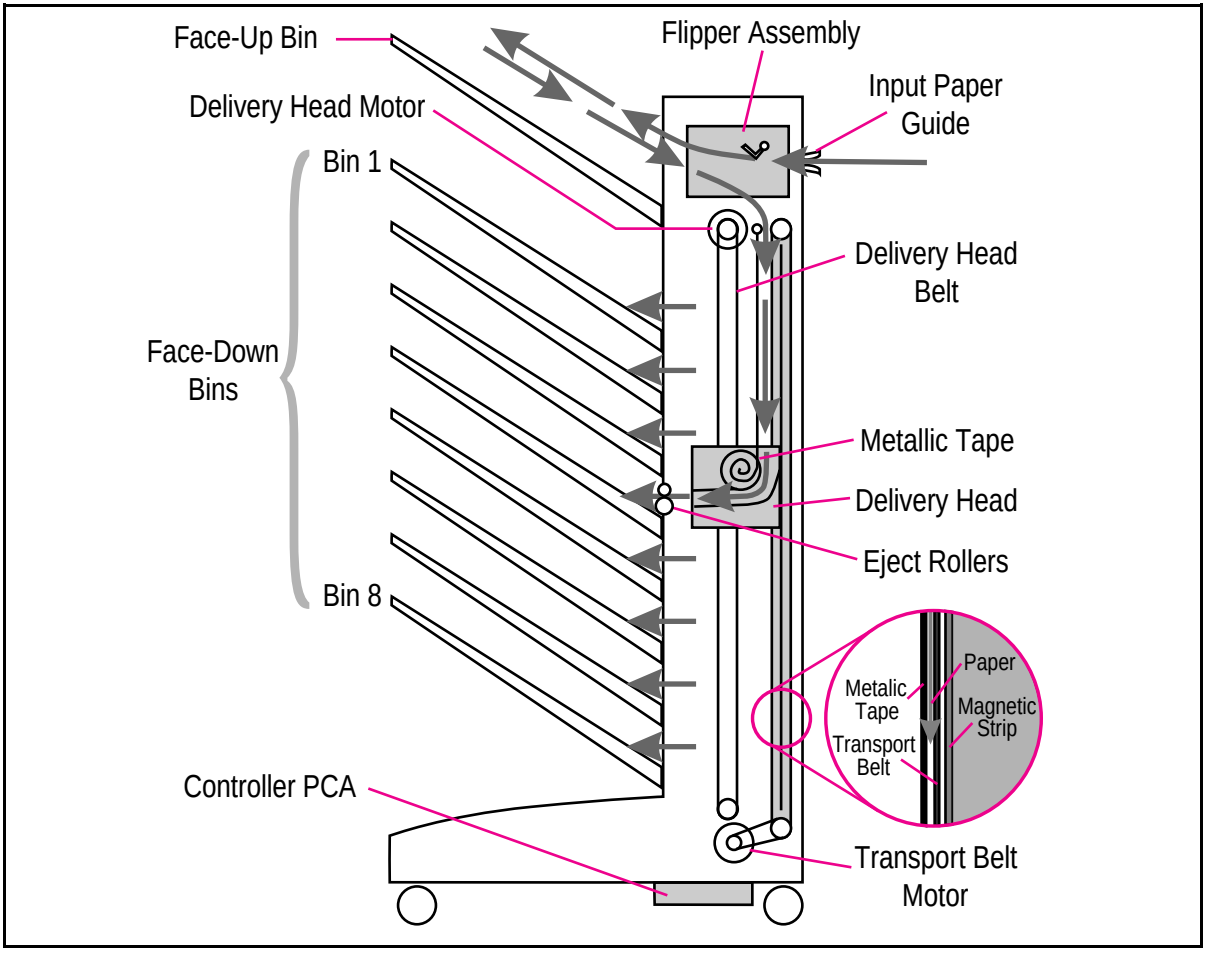


Figure 5-18 Multi-Bin Mailbox Paper Paths

Table 5-5 Multi-Bin Mailbox/Mailbox with Stapler Sensors, Switches, and Motors

Control Device	Title	Location
M1	Delivery Head Position Motor	Upper Left Side
M2	Flipper Roller Motor	Flipper Unit (left end)
M3	Delivery Head Roller Motor	Delivery Head (left end)
M4	Ejector Motor	Under Delivery Head
M5	Transport Belt Motor	Lower Left Side
PSBelt	Transport Belt Motor Sensor	Transport Belt Motor
PSBinEmpty	Paper Bin Empty Sensor	Delivery Head (left end)
PSBinFull/Head Position	Paper Bin (below) is full Sensor	Delivery Head (left end)
PSEject	Delivery Rollers Extended Sensor	Delivery Head (left end)
PSEntry	Paper Entry Sensor	Flipper Unit (top, center)
PSExit1	Paper Delivered to Head Sensor	Delivery Head (left end)
PSExit2	Paper Delivered to Bin Sensor	Delivery Head (left end)
PSFaceUp	Reverse Stepper Motor Sensor	Flipper Unit (top, center)
PSFUFull	Face-Up Bin Full Sensor	Flipper Unit (top, center)
SW1	Interlock Switch	Midway left side
IRLed	Infrared Light Emitter Diode (for stapling assembly)	Delivery Head (left end)

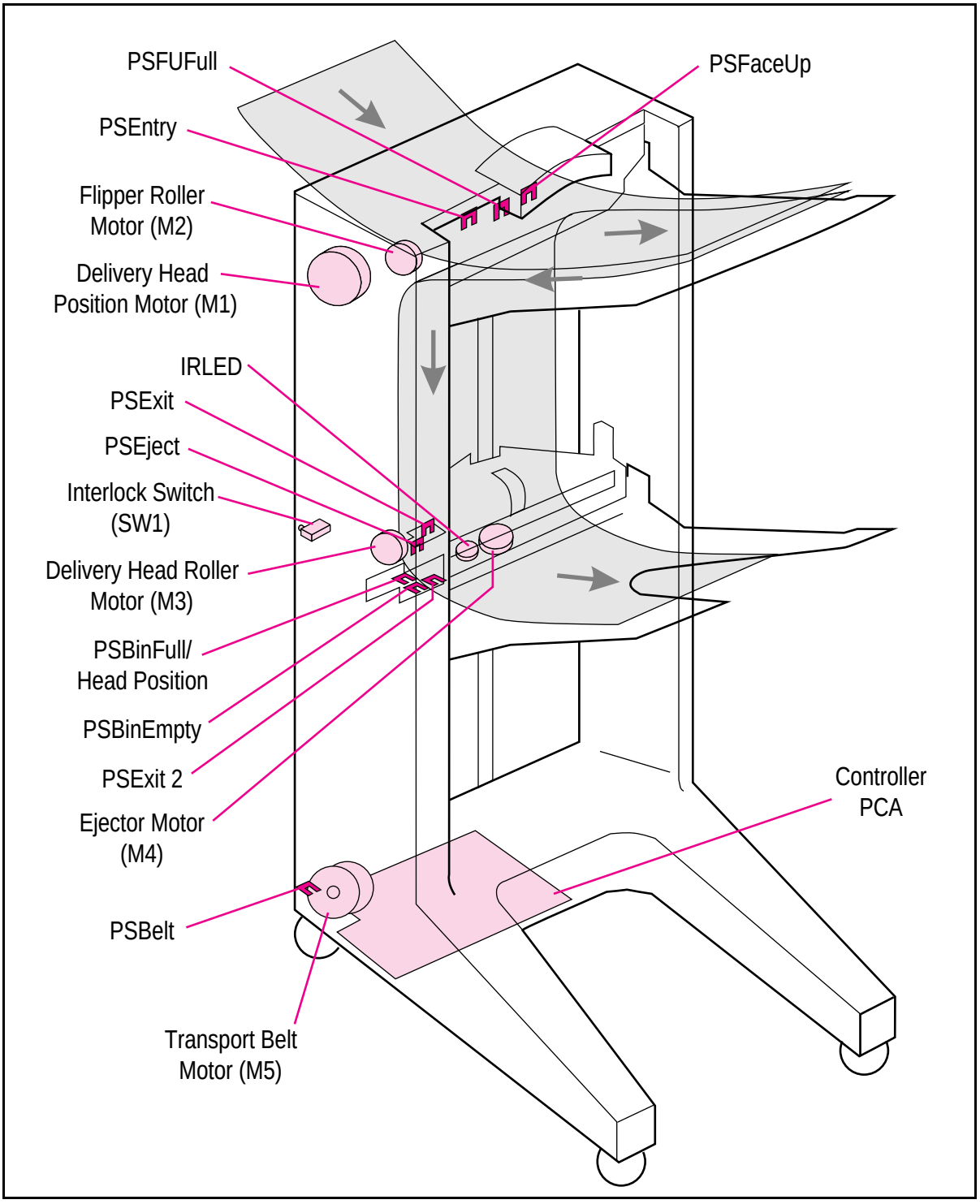


Figure 5-19 Multi-Bin Mailbox/Mailbox With Stapler Sensors and Motors

Multi-Bin Mailbox Operation

All communication and control of the Multi-Bin Mailbox (and the 2000-Sheet Input Unit) is through the External Paper Handling (EPH) PCA mounted on the Formatter Assembly. These instructions are sent to the Multi-Bin Mailbox controller PCA located at the bottom of the frame. The main components of the Multi-Bin Mailbox and their functions are listed in Table 5-5. Power is provided to the Multi-bin Mailbox (MBM) by an external 24Vdc power supply that plugs into the MBM controller PCA. The Multi-Bin Mailbox (MBM) provides four output modes:

- 125-sheet face-up bin. This is the top bin of the unit. It replaces the printer's Face-Up bin.
- Mailbox Mode. This mode uses the remaining eight (five in the Mailbox with Stapler) bins. Up to eight (five in the Mailbox with Stapler) users can be assigned their own bin.
- Job Separator Mode. Different print jobs are placed in separate bins starting from the top (Bin 1) to the bottom (Bin 8 in the MBM and Bin 5 in the Mailbox with Stapler).
- Virtual Stacker Mode. Printed sheets are stacked in the bins from the bottom (Bin 8 in the MBM and Bin 5 in the Mailbox with Stapler) to the top (Bin 1) regardless of print job. The first sheet is sent to the bottom bin until it is full; the next sheet is sent to the next upward bin, etc.

In Mailbox and Job Separator Modes, when power is applied to the unit, the delivery head first moves to the bottom of the frame, and then upward to the top “home” position. It then checks that all the bins are installed, and if any are full with PSBinFull/Head Position. After these checks, the delivery head returns to the top or “home” position. In Virtual Stacker Mode, after counting the bins, the delivery head moves to the lowest numbered empty bin (using PSBinEmpty).

The printer delivers the paper to the MBM at its speed of 107 mm per second. The paper sheets are moved through the MBM transport and delivery systems approximately five times faster (500 mm per second) than the printer delivers them in order to maintain print speeds. The sheet delivery speed for Bins 1 through 8 (Bins 1 thorugh 5 in the Mailbox with Stapler) is reduced to 200 mm per second just prior to release to prevent uneven stacking. Transport Belt speed is monitored by PSBelt.

When paper is to be delivered, the delivery head moves to the bin indicated by the commands from the EPH PCA. The Eject roller is inserted into the bin and starts rotating. The MBM then signals the printer that it is ready to receive paper.

The printer feeds the paper sheet through the face-up delivery slot to the MBM input guide. Paper arrival is sensed by PSEntry. If the paper is designated for the face-up bin, the MBM feeds it through the flipper assembly and releases it into the top bin at 350 mm per second. If the sheet is designated for one of the face-down bins (bins 1 through 8, or 5 in the Mailbox with Stapler), it is fed through the flipper assembly until the

trailing edge is sensed by PSFaceUp. The Flipper Roller motor (M3) then reverses and feeds the sheet down between the transport belt and the metallic tape into the delivery head at the accellerated speed of 500 mm per second.

There is a magnetic strip on the guide behind the transport belt. When a sheet of paper is fed down the transport belt, the magnetic attraction between the metallic tape and the magnetic strip holds the paper against the transport belt as it is pulled downward to the delivery head.

PSExit1 in the delivery head senses paper arrival and starts the delivery head roller motor. PSExit2 senses that paper has been placed into the bin. After ejecting the sheet into the assigned bin, the eject roller is retracted, and the head moves to the next delivery location before the next sheet is accepted from the printer.

Stapling Unit Components

The components of the Stapling Unit paper path are illustrated in Figure 5-20. Figure 5-21 and Table 5-6 illustrate and describe all of its sensors and motors.

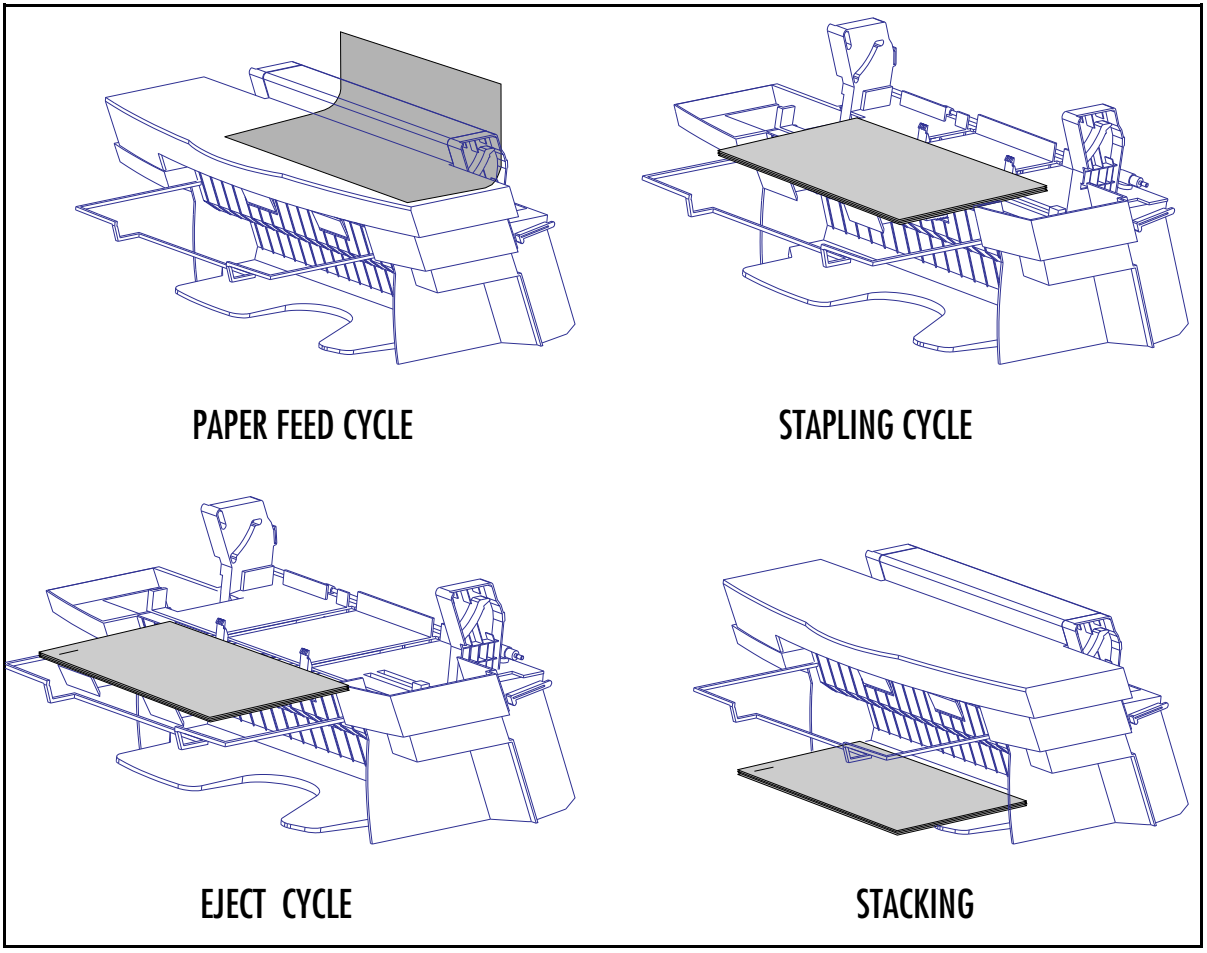


Figure 5-20 Stapling Unit Paper Paths

Table 5-6 Stapling Unit Sensors, Switches, and Motors

Control Device	Title	Location
M1	Stapler DC Motor	Stapler Assembly
M2	Rack Stepper Motor	Top Cover Assembly
M3	Slider Stepper Motor	Top Cover Assembly
M4	Retainer DC Motor	Stapling Bed Assembly
IR Sensor	Infra Red Sensor	Stapling Bed Assembly
STL Sensor	Stapler Sensor	Stapler Assembly
PSRack	Rack Sensor	Top Cover Assembly
PSSlider	Slider Sensor	Stapling Bed Assembly
PSRetainer	Retainer Sensor	Stapling Bed Assembly
PSBinFull	Output Bin Full Sensor	Stapling Bed Assembly
PSNBinFull	Next Bin Full Sensor	Housing
STLout	Staples Out	Stapler Assembly
SW1	Top Cover Interlock Switches (2 in serial)	Right Hinge

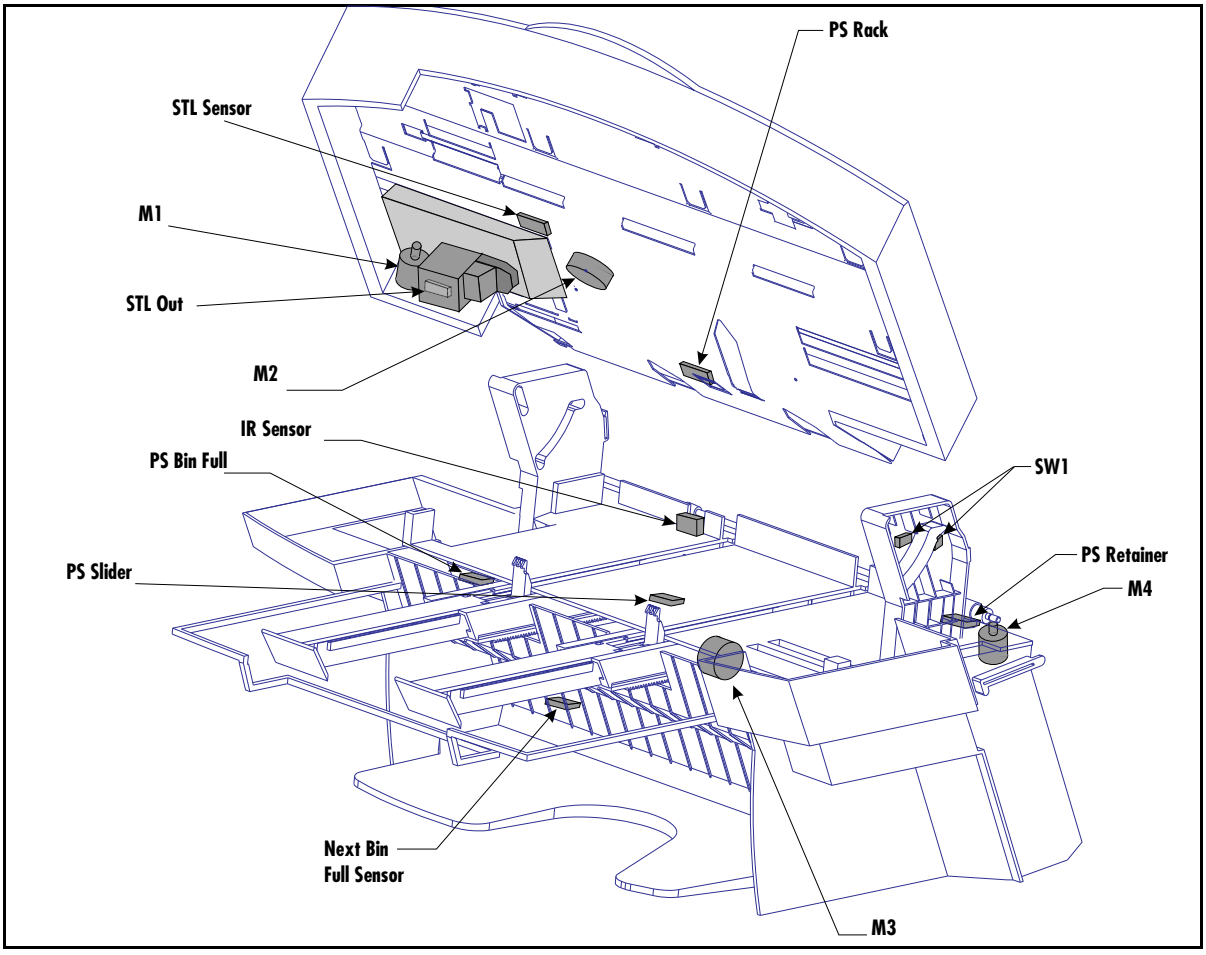


Figure 5-21 Stapler Sensors and Motors

The major assemblies and subassemblies of the stapler are shown in Table 5-7.

Table 5-7 Major Assemblies and Subassemblies of the Stapler

Major Assembly	Subassemblies
Stapling Bed Assembly	Retainer Assembly
	Sliders Assembly
Top Cover Assembly	Stapler Assembly
	Rack Assembly Registration Pusher Off-Set Pusher
	Exit Flap Assembly
Housing	Output Bin
	Bin Full Sensor Actuator
	Wire Frame
Stapling Unit Controller PCA	N/A

Mailbox with Stapler Operation

All communication and control of the Mailbox, the 2000-Sheet Input Tray, and the Stapler is through the External Paper Handling Controller (EPH) PCA mounted in the Formatter Assembly. These instructions are sent to the stapler controller PCA located in the lower part of the stapling unit. The main components of the stapler are listed in Table 5-6. Power is provided to the stapler by the Multi-Bin Mailbox/Mailbox With Stapler external 24Vdc power supply through the CLINK cable. The stapler is mounted in the Multi-Bin Mailbox/Mailbox With Stapler, replacing the three top output bins. It handles letter and A4 sizes plain paper. The stapler can staple up to a maximum of 20 sheets.

Main Functional Cycles of the Stapler

Paper Feed Cycle

The Stapling Bed Assembly receives the paper from the Multi-Bin Mailbox/Mailbox With Stapler Head assembly. The IR Sensor detects when the paper arrives in the stapler. The Retainer (a shaft holding two rubber flexible fingers or anti-curl fingers) rotates once to apply pressure down and backward. This action forces the paper to register against the rear wall of the Stapling Bed, as well as reduces paper curl. The Registration Pusher (located in the right side of the Top Assembly) registers the paper against

the left wall of the Stapling Bed. This cycle is repeated until the amount of sheets to be stapled is reached (with a maximum of 20).

Stapling Cycle

The Sliders move the stack of sheets to the stapling position. The Registration Pusher applies slight pressure to the stack of sheets toward the left wall of the Stapling Bed, where the stapler is located. Then the stack of sheets are stapled.

Eject Cycle

The stapling bed sliders offsets the stacks or jobs. The Off-Set Pusher (located in the left side of the Top Cover Assembly) pushes the stack towards the right side of the Stapling Bed, whenever it applies. The Sliders move the stack of paper from stapling position to eject position, which is out of the Stapling Bed (reaching the Wire Frame level). The Wire Frame directs the stack of paper. The Exit Flap Assembly moves down to prevent the job from returning to the Stapling Bed. The Sliders retract to home position, letting the stack of sheets fall into the output bin. The capacity of the output bin is 300 stapled sheets in jobs of five sheets or equivalent combinations.

Power-On or Reset Sequence

At power-on or reset, events are performed in the following sequence:

1. Stapler Assembly is set to a ready state.
2. Retainer Assembly is turned to its initial position.
3. Rack Assembly is moved to find its home position, which is in the left side of the Top Cover Assembly.
4. Slider Assembly is moved to find its home position, which is inside of the Stapling Bed.
5. Slider Assembly is moved fully out from the Stapling Bed to the eject position.
6. Rack Assembly is moved to activate the Exit Flap Assembly.
7. Slider Assembly is moved to its home position.
8. Rack Assembly is returned to its home position.

Printer Input Sources

Paper Size Switches

The paper guides in Trays 2 and 3 operate four levers at the back of the trays which activate the size sensing switches (SW1601 through SW1604) mounted in the printer chassis. Table 5-8 compares paper sizes to switch conditions.

Table 5-8 Paper Size Switches

Paper Size	SW1601	SW1602	SW1603	SW1604
Ledger (portrait)	OFF	OFF	OFF	OFF
A3 (portrait)	OFF	ON	OFF	OFF
B4 (portrait)	ON	OFF	OFF	OFF
Legal (portrait)	ON	ON	OFF	OFF
Letter (landscape)	OFF	OFF	OFF	ON
A4 (landscape)	OFF	OFF	ON	OFF

Printing from Trays 2 and 3

The Pickup, Feed, and Separation rollers start rotating when the DC Controller receives the /PRNT signal from the Formatter PCA. Then, the DC Controller activates the Pickup Solenoid (SL1) and starts feeding paper through the Paper Input Unit (PIU), triggering photosensors PS2, and then PS1. These sensors inform the DC Controller that paper has passed through the PIU and is present at the Registration Assembly.

When the Laser/Scanner and Fuser are ready, the DC Controller sends the /VSREQ signal to the Formatter. When the Formatter has processed the print data, it sends the /VSYNC and /VDO signals to the DC Controller. The paper is then released from the Registration Assembly (by CL1), and fed to the photosensitive drum, starting the image transfer and fusing processes. After the paper passes through the Fuser, it triggers PS1403, and PS1402 to the specified type, size, and destination of the paper being fed through the printer.

Printing from Tray 1

The presence of paper in Tray 1 is detected by the Tray 1 Paper Present Sensor (PS1301). The lifting plate pressurization solenoid (SL2) is then activated, releasing the plate which applies upward pressure on the paper, causing it to contact the Tray 1 pickup roller. The Tray 1 Feed Clutch (CL3) turns on at this time and feeds the paper from Tray 1 to the registration position.

The remainder of the Tray 1 print process is identical to the Tray 2 and 3 process, described above.

Printing from the Envelope Feeder

The Envelope Feeder mounts in slots above Tray 1. The printer can print from Tray 1 when the Envelope Feeder is installed. When the print job calls for an envelope, it is fed directly to the Registration Assembly. From there, the print process is identical to the Tray 2 and 3 process, described above.

Printing from Tray 4 (2000-Sheet Input Unit)

Tray 4 feeds the paper upward through a guide slot in the Lower Right Door Assembly to the Paper Input Unit. Once there, the operation is the same as printing from Trays 2 and 3.

Two-Sided Printing

The Duplex Unit mounts inside the printer below the Fusing Assembly. The back side of the paper is printed first, the paper is turned over, and then fed back to the Registration Assembly for front side printing. When the print job calls for 2-sided printing, a solenoid in the Duplex Unit operates the duplex flipper in the Diverter Assembly and routes the paper to the Duplex Unit. The paper does not exit the printer when being turned over for 2-sided printing. It is routed through a slot in the back of the Duplex Unit, down inside the left cover and under Tray 3. When the Duplex Unit senses the trailing edge of the paper, it reverses direction and feeds the paper back through the Duplex Unit to the Registration Assembly.

Paper Jam Detection

The PIU Sensor (PS2), the Registration Sensor (PS1), the Fuser Delivery Sensor (PS1403), and the Face-Down Delivery Sensor (PS1402) detect when paper is moving through the printer (see Figure 5-15 for sensor locations). If a paper jam is detected, the DC Controller immediately stops the printing process and causes a 13.x PAPER JAM message to be displayed on the control panel. If a paper jam occurs in the Envelope Feeder, Duplex Unit, 2000-Sheet Input Unit, or Multi-Bin Mailbox/Mailbox With Stapler, the 13.x Paper Jam message will indicate the approximate location. Refer to Table 7-1 for more details.

Printer Timing

The Formatter PCA and the DC Controller PCA share information during printer operation. This information consists of printer status, command, and dot-image data. Figure 5-22 and 5-23 show the general timing of the printer events. The following events take place during normal printer operation:

Table 5-9 Printer Timing

Period	Timing	Purpose
WAIT	From power ON to the end of Main Motor initial rotation.	Clear the drum surface potential and clean the Transfer Roller.
STBY (standby)	From the end of the WAIT or the LSTR period until the input of the PRNT signal from the Formatter PCA. Or from the end of the LSTR period to power OFF.	Maintain the printer in the READY state.
INTR (initial rotation)	From the input of the PRNT signal from the Formatter PCA until the laser diode intensity has been stabilized.	Stabilize the photosensitive drum sensitivity in preparation for printing. Clean the Transfer Roller.
PRNT	From the end of the initial rotation until the Scanner Motor stops.	Form images on the photosensitive drum based on the /VDO signal from the Formatter PCA. Transfer the image to the media.
LSTR (last rotation)	From the primary voltage (DC) OFF until the Main Motor stops. If another PRNT signal is sent from the Formatter PCA, the printer returns to the INTR period. If not, it returns to the STBY period.	Deliver the last sheet of paper, and clean the Transfer Roller.

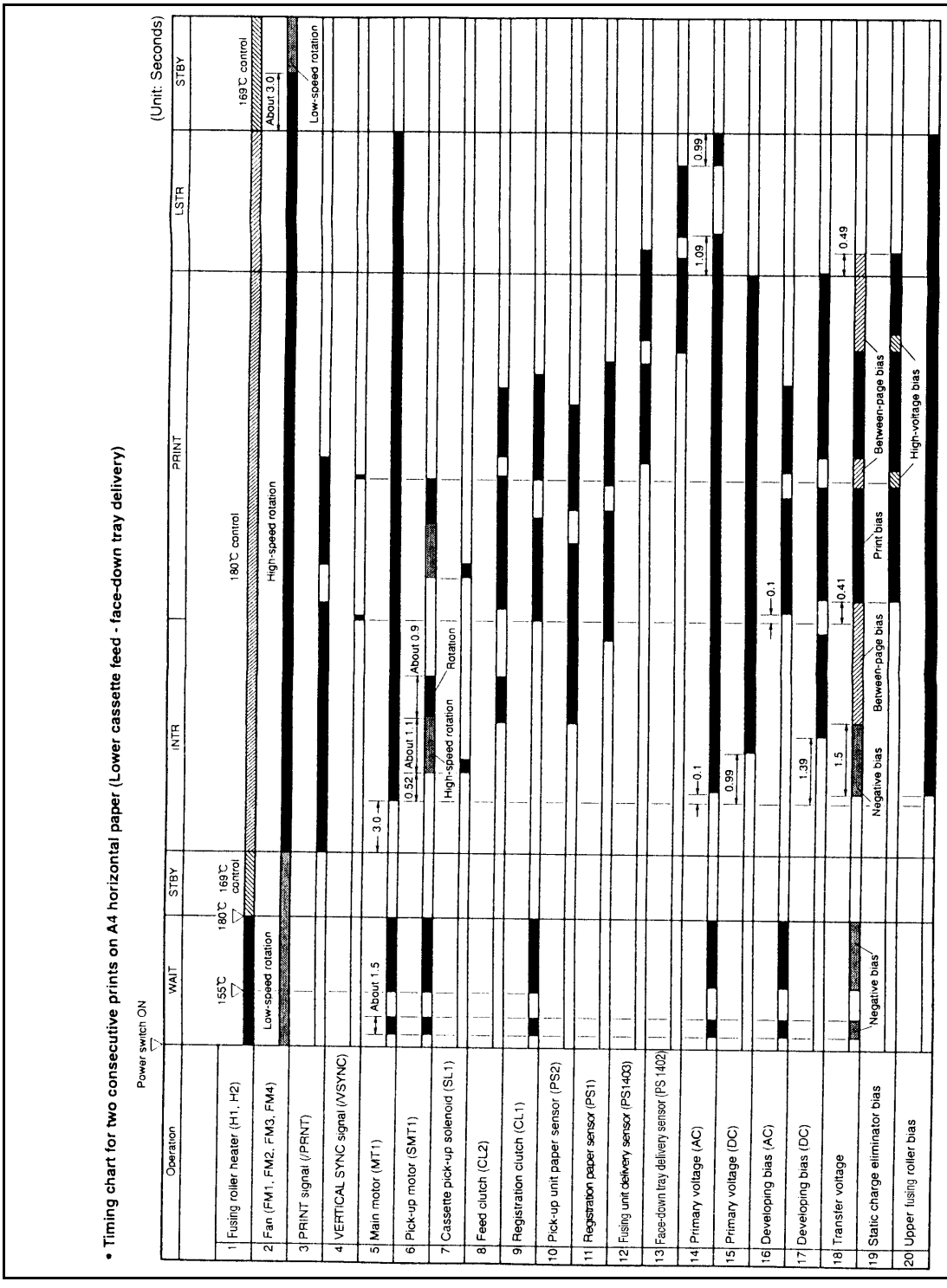


Figure 5-22 General Timing Diagram (1 of 2) for LJ 5Si/5Si MX

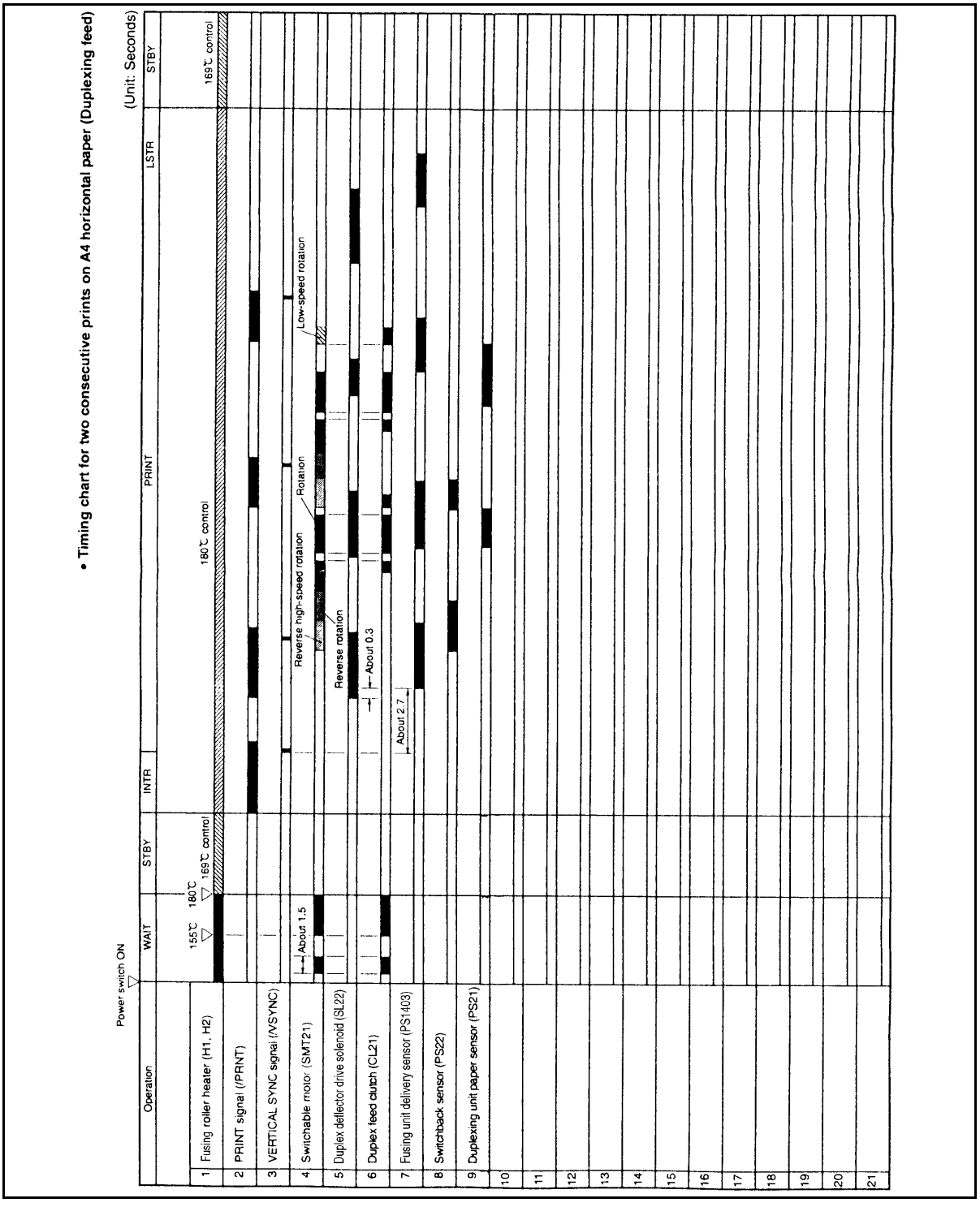


Figure 5-23 General Timing Diagram (2 of 2) for LJ 5Si/5Si MX

6

Removal and Replacement

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Removal and Replacement Strategy

This chapter documents removal and replacement of major assemblies.

Replacement is generally the reverse of removal. Occasionally, directions for difficult or critical replacement procedures are included.

WARNING!

Unplug the power cord from the power outlet before attempting to service the printer. If this warning is not followed, severe injury may result.

Never operate or service the printer with the protective cover removed from the Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes.

This printer has some sharp sheet metal edges which can cause injury.

Caution

The printer contains parts that are electrostatic discharge (ESD) sensitive. Always service printers at an ESD protected workstation. Watch for the ESD reminder shown at left while performing removal procedures.

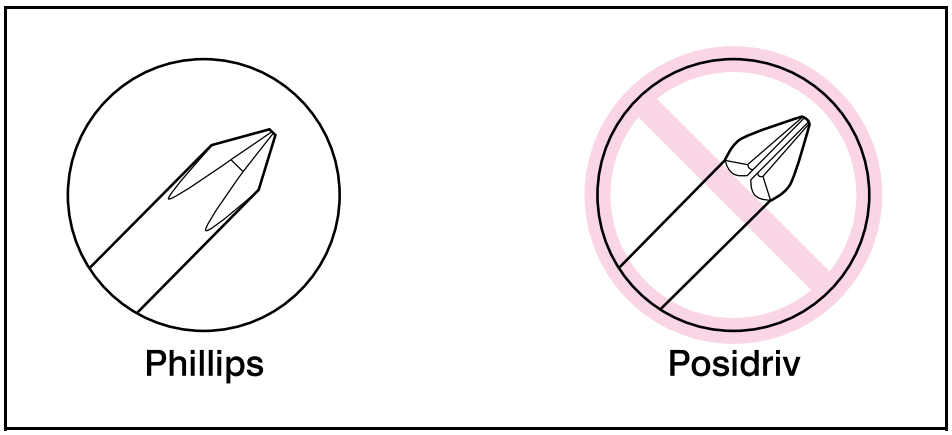
Required Tools

- #2 magnetized Phillips screwdriver (6-inch shaft)
- Small flat-blade Screwdriver
- Small pair needle-nose pliers
- T-15 Torx Driver (6-inch shaft)

All components in the printer and in the 2000-Sheet Input Unit use Phillips head screws which require a #2 size Phillips screwdriver. Figure 6-1 shows the difference between a Phillips and a Pozidriv screwdriver. Note that the Phillips tip has more beveled surfaces.

All screws used in the field-replaceable Multi-Bin Mailbox/Mailbox With Stapler components require a T-15 Torx driver.

Figure 6-1



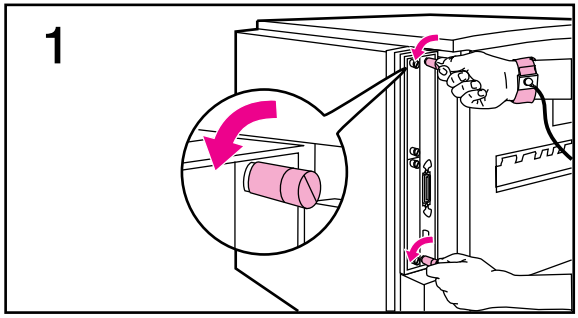
Phillips vs. Posidriv Screwdrivers

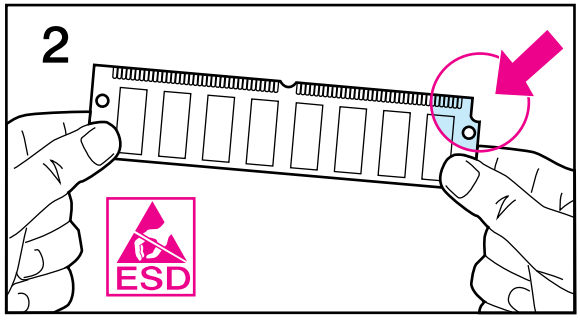
Note

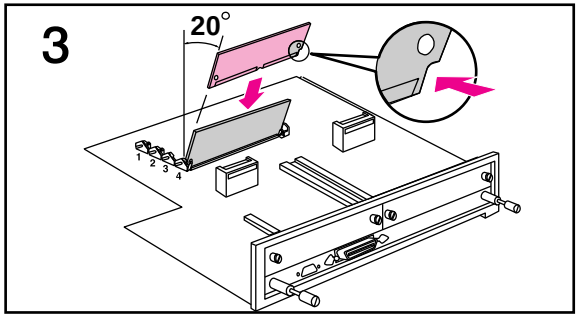
See Table 6-1 and Chapter 8 for a table listing screws and other common hardware used in the printer.

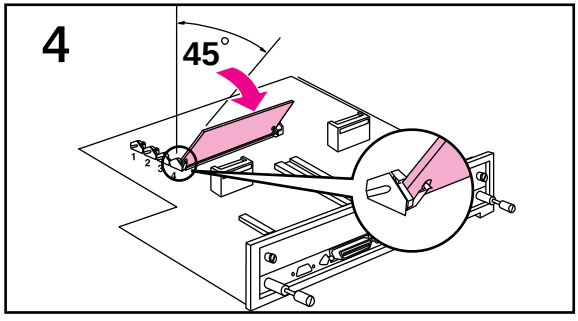
Caution

To install a self-tapping screw, first turn it counter-clockwise to align it with the existing thread pattern, then carefully turn clockwise to tighten. Do not over-tighten. If a self-tapping screw-hold becomes stripped, repair of the screw-hole or replacement of the affected assembly is required.









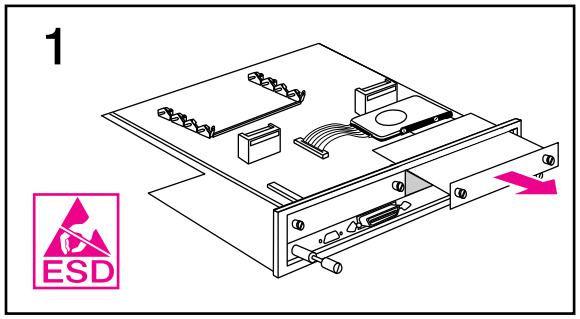
Memory and Personality Upgrade

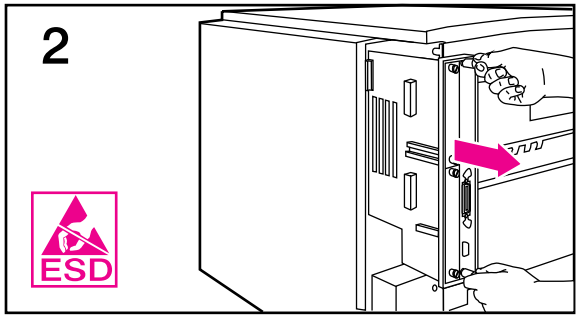
Caution

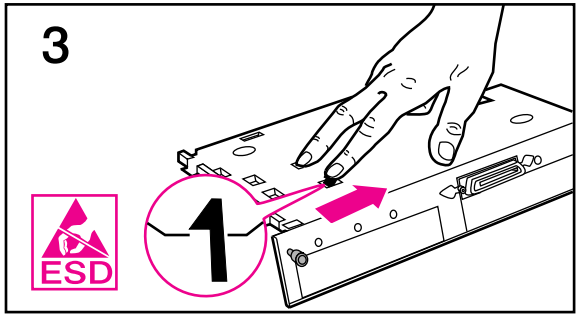
SIMM's and the Formatter PCA can be damaged by small amounts of electrostatic discharge (ESD). Wear an anti-static wrist wrap.

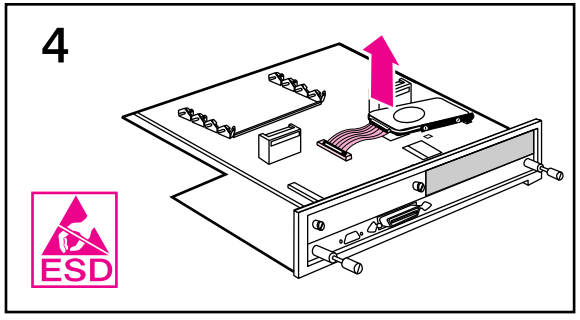
1. With the printer OFF and unplugged, loosen the two captive screws and remove the Formatter PCA.
2. Remove the SIMM from the anti-static package. Hold the board with your forefingers on the side edges and your thumbs against the back edge, so that the notch on one end is on the right and the metal teeth face toward the SIMM slot (match the positioning shown in frame 2).
3. Insert the board firmly into the SIMM slot at about a 20-degree angle. Use closest open slot toward the back of the printer.
4. Rotate the SIMM toward the back of the printer to a 45-degree angle until it clicks into the metal locking tabs. If it is properly seated, it will not lift away from the slot. (To remove a SIMM, you must first release the metal locking tabs.)
5. Slide the printer Formatter PCA back into the printer and tighten the two screws.
6. Re-attach any cables and the power cord, then switch the printer ON and print a PCL Configuration Page to verify the new memory is available. If the SIMM is not recognized, turn the printer OFF and reseat the SIMM. If an error occurs, refer to "Printer Messages" in Chapter 7.

Disk Drive







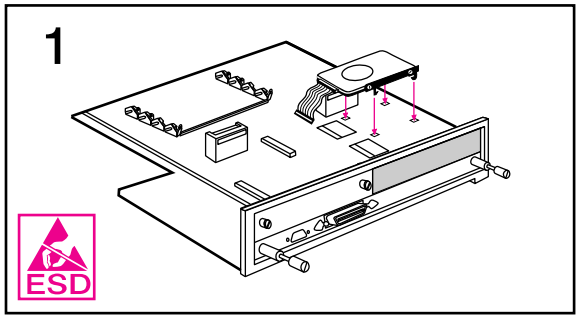


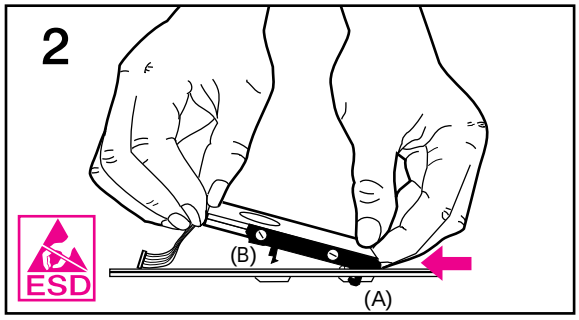
Note

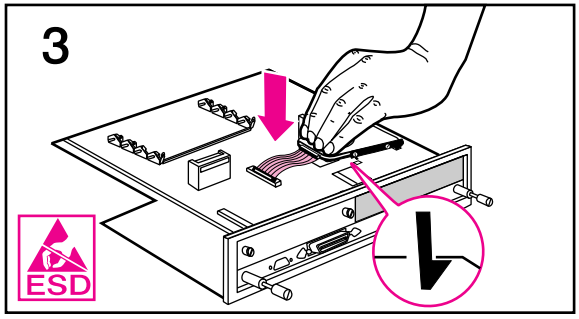
When the disk drive is replaced, all fonts and macros must be re-loaded.

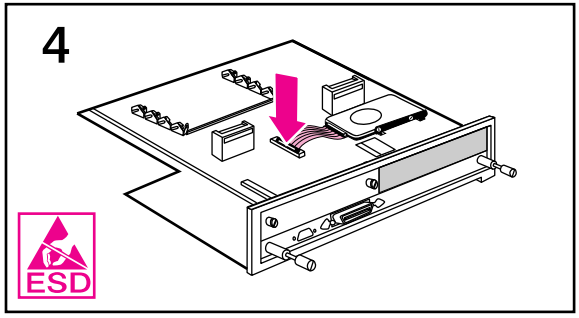
1. The Disk Drive is mounted on the upper front corner of the Formatter PCA under MIO card No. 1 (if installed).
2. With the printer OFF and unplugged, loosen (2) captive screws and remove the Formatter Assembly. Remove MIO card No. 1, if installed.
3. Place the Formatter Assembly face down on a level surface. There are (2) small latches and (2) large latches. Push the (2) small latches through the holes to unlatch the drive.
4. Flip the Formatter Assembly over, unlatch the ribbon cable and remove the drive.

To Reinstall Disk Drive



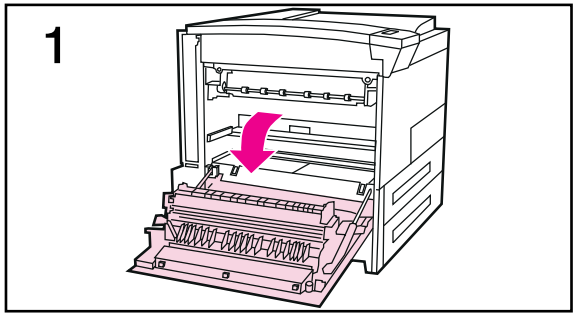


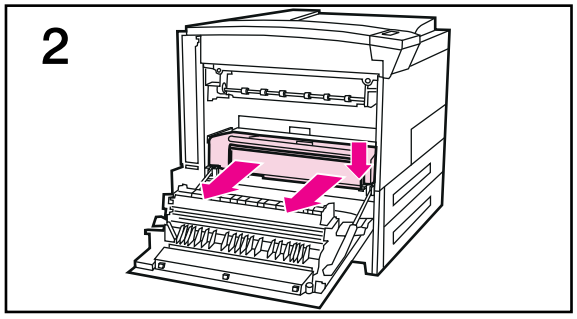




1. Locate the four disk drive mounting holes on the Formatter Assembly. Remove the drive from the packaging and align with to the mounting holes.
2. Tilt the drive up and insert latch A (nearest the board edge) in the hole, then slide the drive toward the center of the formatter board.
3. Push down firmly on the cover of the disk drive nearest the cable until the latch (B) clicks into position.
4. Carefully align the cable to connector J3 on the Formatter board and press firmly into place.
5. Reinstall the Formatter Assembly, reconnect the cables, and print a Disk Directory Page from the Control Panel Test Menu to verify proper installation.

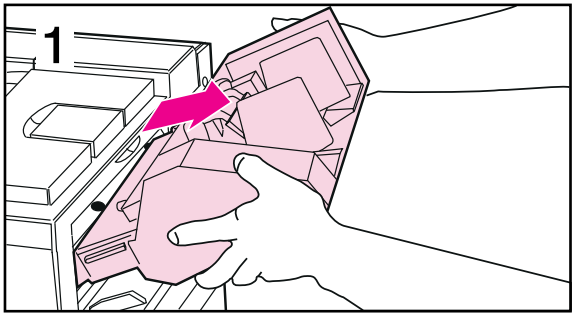
Duplex Unit





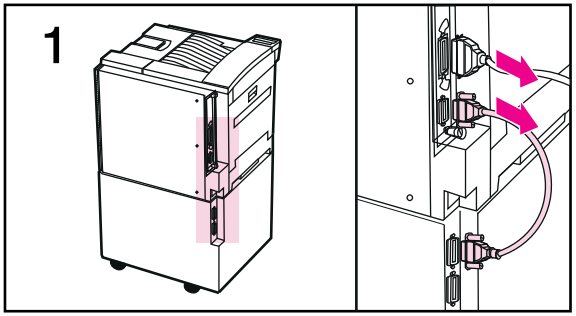
1. With the printer turned OFF and unplugged, open the Diverter door on the left side of the printer.
2. Push down the green release lever located at the lower right of the Duplex Unit and slide it straight out of the printer.

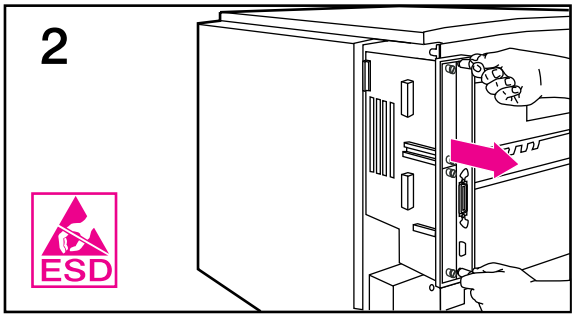
Envelope Feeder

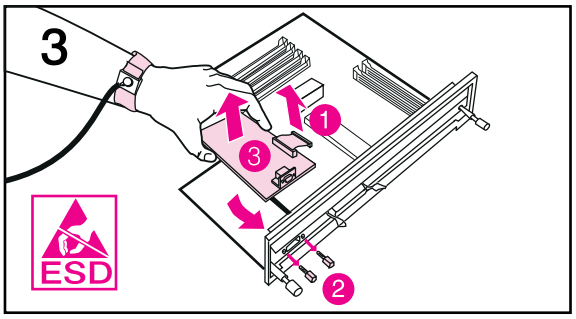


1 With the printer turned OFF and unplugged, slide the Envelope Feeder up and out of the printer.

External Paper Handling Controller

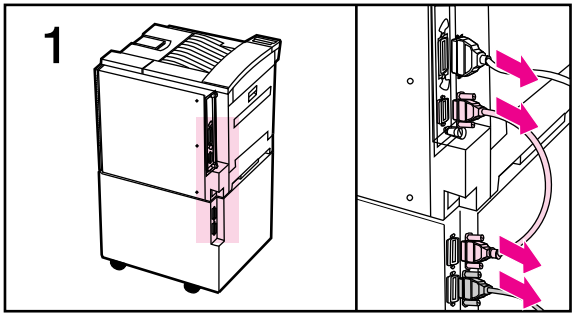


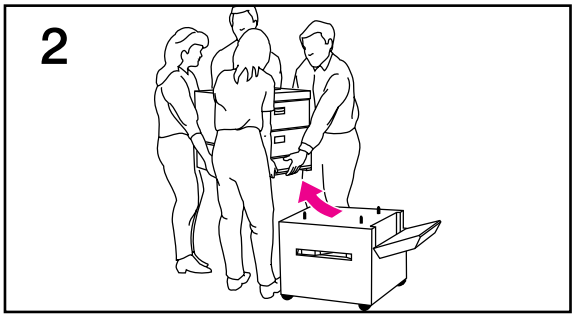


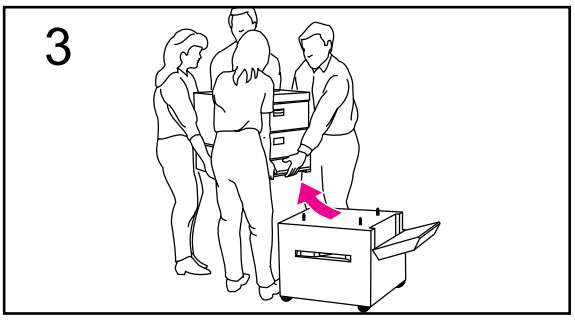


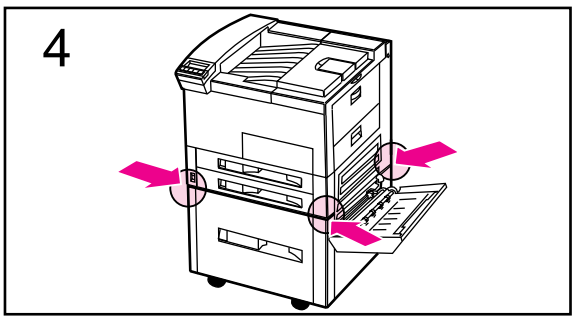
1. With the printer turned OFF and the power cable unplugged, disconnect all interface cables from the Formatter Assembly.
2. Loosen (2) captive screws and remove the Formatter Assembly. Remove MIO card No. 2, if installed.
3. Unplug the ribbon cable connector (1), remove the connector mounting screws (2), and lift the PCA clear of the Formatter Assembly (3).

Tray 4 (2000-Sheet Input Unit)









1 With the printer turned OFF and the power cable unplugged, disconnect all interface cables from the Formatter Assembly and from Tray 4.

WARNING!

The printer weighs approximately 100 pounds. Use at least four people to lift it.

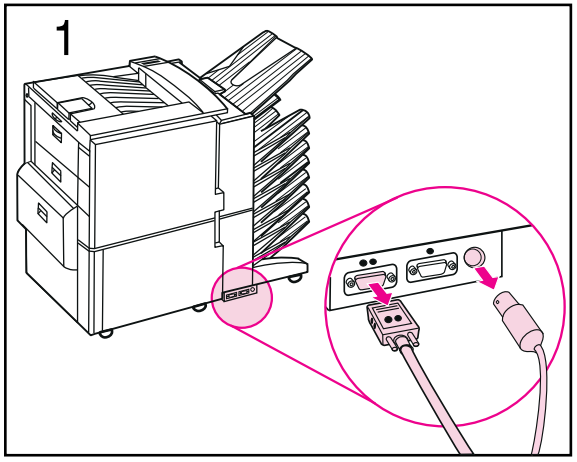
2 Lift the printer clear of the Tray 4 assembly and place it on a smooth, sturdy surface.

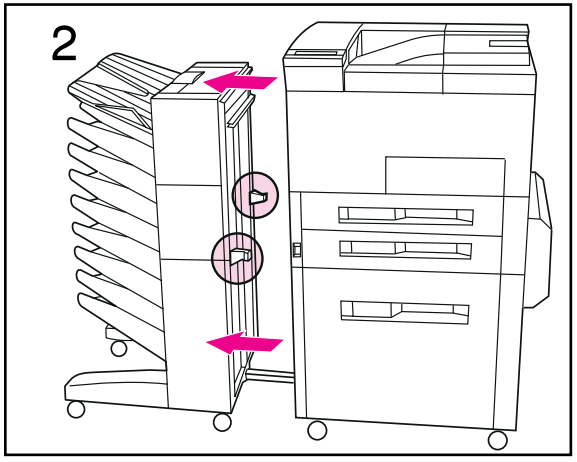
To Reinstall:

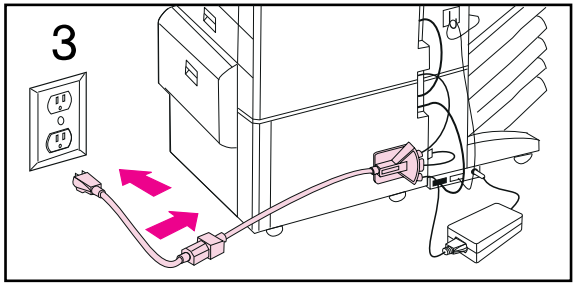
3 Match the locater pins as illustrated in step 3.

4 Make sure that the printer is aligned on all corners

Multi-Bin Mailbox/Mailbox With Stapler







1 With the printer turned OFF and unplugged, disconnect the power and interface cables from the Multi-Bin Mailbox/Mailbox With Stapler controller PCA.

2 Carefully slide the Multi-Bin Mailbox/Mailbox With Stapler away from the printer until the locator tabs and the lower guide rail are clear.

To Reinstall:

1 Make sure that the lower guide rail and the locator tabs are aligned, and that the dot pattern on the PCA connector and cable connector match.

2 Make sure that the Interlock Switch is fully depressed.

3 **To connect the power cables for the Mailbox with Stapler only:** Attach the top (longest) section of the 3-way power adapter to the power connector on the back side of the print engine.

Attach the middle section of the 3-way power adapter to the power connector on the back side of the 2000-Sheet Input Tray.

Attach the bottom section of the 3-way power adapter to one end of the power supply box. Attach the other end of the power supply box to the power connector at the bottom of the mailbox.

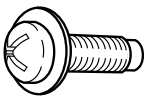
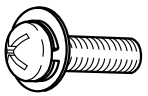
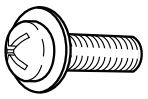
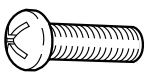
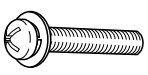
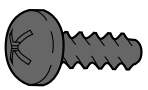
Connect the single section of the 3-way power adapter to the power cords.

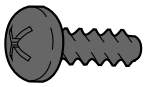
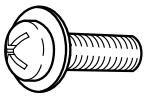
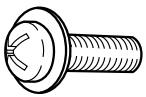
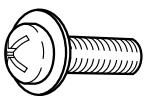
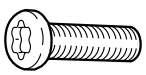
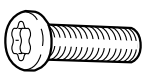
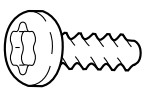
Connect the power cord to a grounded power outlet.

Hardware Table

Note The screws listed in Table 6-1 are also listed in Chapter 8 with their respective assemblies.

Table 6-1 Hardware Table

Example	Reference	Description	Part Number	Usage
	CH101	Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	General, Metal to metal
	CH102	Screw, TP, M3X6 (floating flat and lock washer)	XA9-0547-000CN	General, Plastic over metal
	CH103	Screw, M4X8	XB6-7400-807CN	Main Motor
	CH104	Screw, CT, M3X3	XB5-6303-007CN	Fan 1, Fan 2
	CH105	Screw, w/washer, M3X20	XA9-0817-000CN	Laser/Scanner
	CH106	Screw, tapping, truss head, M3X8	XB4-7401-809CN	HVPS, DC Controller

	CH107	Screw, tapping, pan head, M4X10	XB4-7401-009CN	Diverter Assembly, Face-Up Solenoid Assy
	CH108	Screw, TP, M4X6	XB6-7400-606CN	2000-Sheet Input Unit, general use
	CH109	Screw, TP, M4X6	XB6-7400-607CN	2000-Sheet Input Unit, right cover
	CH110	Screw, TP, M3X6	XB6-7300-607CN	2000-Sheet Input Unit, Transfer Assembly
	CH111	Screw, Torx T20, M4X12	Included in Hardware Kit C3764-67901	Multi-Bin Mailbox/Mailbox With Stapler, Elevator Head
	CH112	Screw, Torx T20, M4X10	Included in Hardware Kit C3764-67901	Multi-Bin Mailbox/Mailbox With Stapler, general use
	CH113	Screw, tapping, Torx T20, M4X10	Included in Hardware Kit C3764-67901	Multi-Bin Mailbox/Mailbox With Stapler, Controller PCA

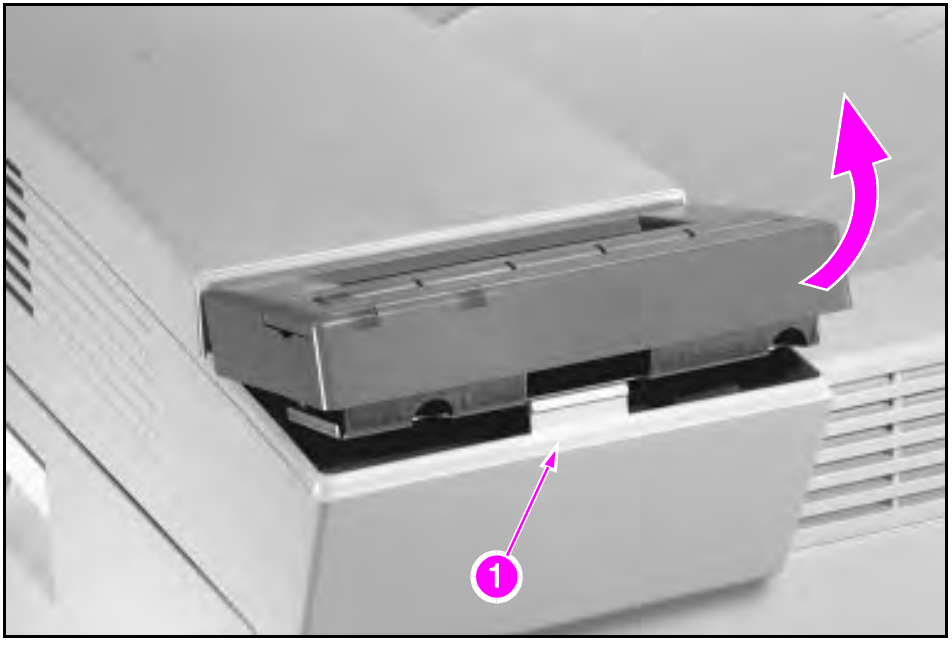
Control Panel

1 While pushing in on the side of the printer (Figure 6-2, callout 1) lift up on the forward edge of the control panel to release the plastic retaining tab .
2 Remove the cable from the retainer and unplug the control panel connector .

To Reinstall:

Plug in the cable, replace the cable in its retainer, insert the rear edge of the control panel under the top cover lip, and press down on the forward edge to snap it into place.

Figure 6-2



Control Panel

Covers

There are five cover assemblies in this printer:

- AC Access Cover, located at the left rear of the printer.
- Back Cover, provides access to the HVPS, DC Controller, LVPS, and Main Motor.
- Front Cover, including front access door.
- Left Lower Cover, located below the Diverter Access Door.
- Top Cover, provides access to the Face-Down Delivery Unit and Laser/Scanner Assembly.

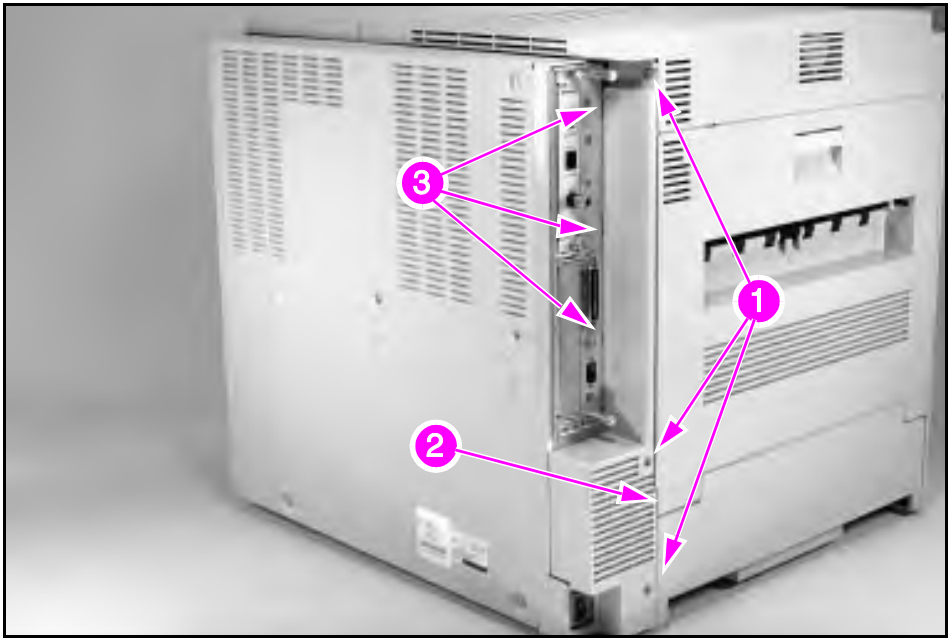
AC Access Cover

1 Remove the Formatter PCA.
2 Remove (3) screws, CH102 (Figure 6-3, callout 1).

To Reinstall:

1 Tuck the panel edge (Figure 6-3, callout 2) inside the back cover (if installed).
2 Be sure that the three alignment tabs (Figure 6-3, callout 3) are inserted into their slots before replacing the screws.

Figure 6-3



AC Access Cover

Back Cover

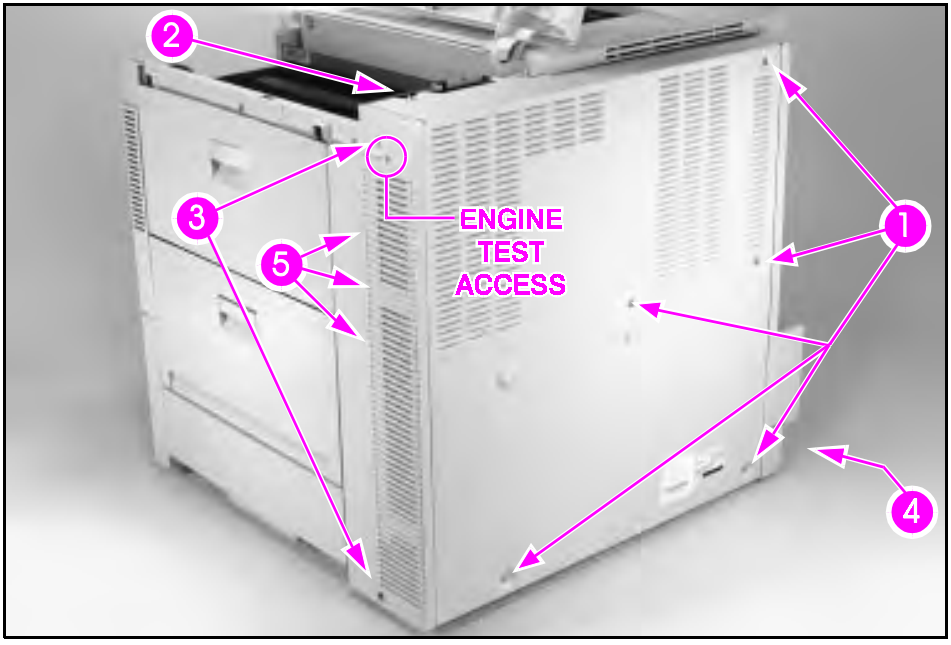
Note

The metal back cover and the plastic panel at the right rear are removed as a single unit.

The square opening at the upper rear corner on the right side plastic panel is the engine test access.

1. Remove (5) screws, CH102 (Figure 6-4, callout 1).
2. Open the top cover door and remove (1) screw, CH102 (Figure 6-4, callout 2)
3. Open the 2000-Sheet Input Unit transfer door (if installed), Tray 1, and the Right Lower Door Assembly.
4. Remove (2) screws, CH102 (Figure 6-4, callout 3), from plastic panel to the left of the metal back cover.
5. Carefully release the cover around the AC input connector (Figure 6-4, callout 4) at the lower right of the back cover and slide the right side of the cover slightly forward.
6. Carefully release the retaining tabs (Figure 6-4, callout 5) on the plastic panel to the left of the metal back cover by gently pulling the cover to the left while moving both pieces away from the printer chassis.

Figure 6-4



Back Cover

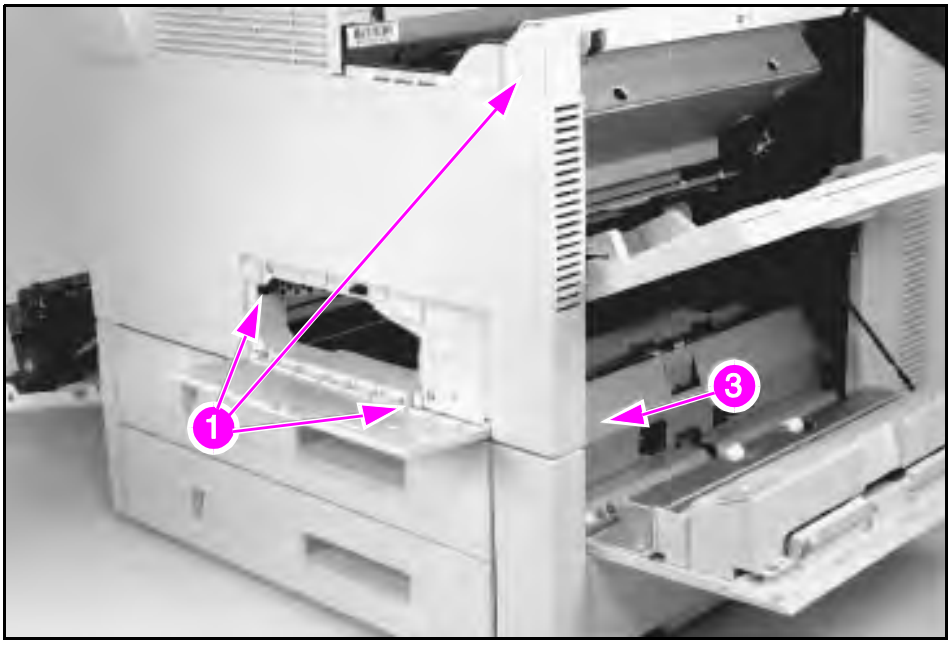
Front Cover

1. Open all access doors and remove the Duplex Unit if installed.
2. Open front access door and remove (3) screws, CH102 (Figure 6-5, callout 1).
3. Open the Diverter Access Door and release the two plastic retaining tabs inside the Duplex Unit cavity (Figure 6-6, callout 2).

Caution Be careful, the plastic upper retaining tabs will break off if the cover is tilted too far out.

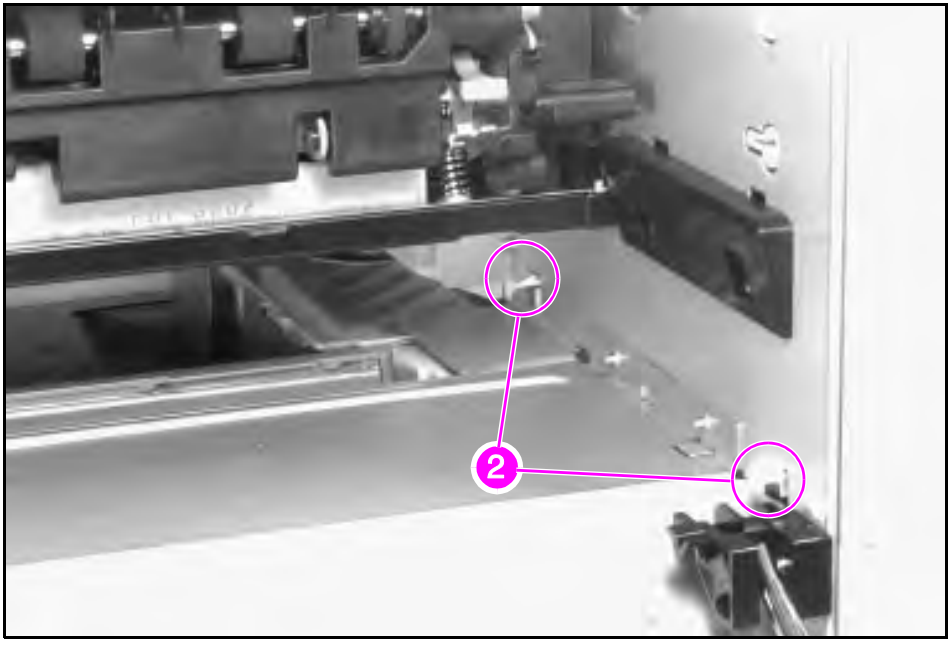
4. Carefully pull the bottom of the cover away from the chassis while moving it to the right to release the retaining tab (Figure 6-5, callout 3).
5. Carefully tilt the bottom edge of the cover away from the chassis to release the upper retaining tabs.

Figure 6-5



Front Cover (1 of 2)

Figure 6-6



Front Cover (2 of 2)

Left Lower Cover

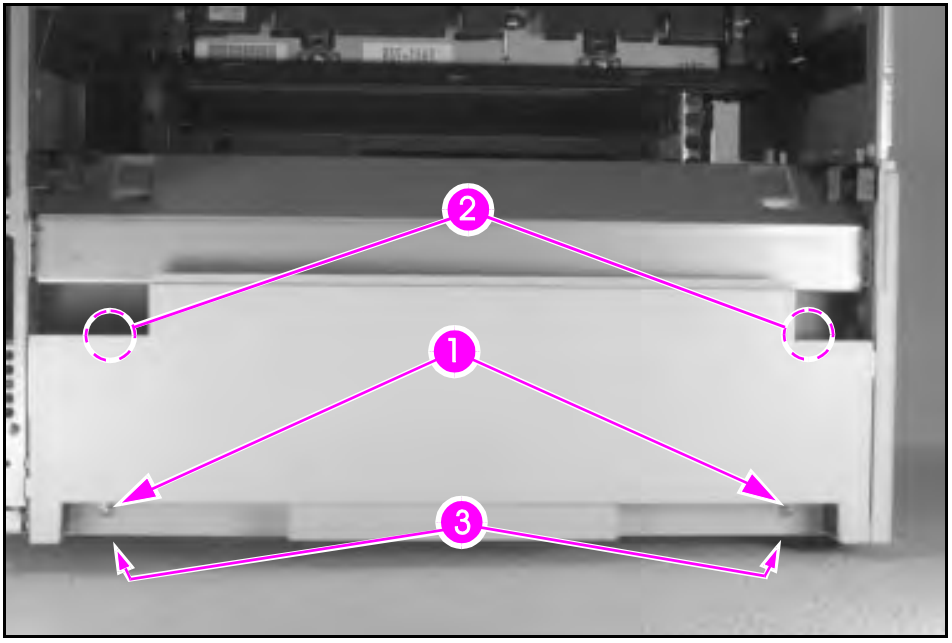
Caution Be careful not to damage the plastic guides on the inside of the lower left cover. They are part of the Duplex Unit paper path.

1. Remove the Diverter Assembly access door (see Figure 6-13).
2. Remove (2) screws, CH102 (Figure 6-7, callout 1)
3. Press down firmly on the top cover outer ends to release the retaining tabs on the inside of the cover (Figure 6-7, callout 2), and the retaining tabs at the lower edge of the cover (Figure 6-7, callout 3).
4. Pull the cover away from the chassis, left side first.

To Reinstall:

1. Tuck the right side of the cover behind the plastic edge piece first.
2. Slide the cover toward the chassis and insert the two retaining tabs into position. Lift up to snap the cover into place.

Figure 6-7



Left Lower Cover

Top Cover

1. Remove Control Panel (see Figure 6-2), and remove (1) screw, CH102 (Figure 6-8, callout 1).
2. Open the Diverter Assembly access door and remove (1) screw, CH102 (Figure 6-8, callout 2).
3. Open the top cover door and remove (1) screw, CH102 (Figure 6-9, callout 3).

Caution Be careful not to damage the Face-Down Bin Full sensor flag (Figure 6-9, callout 4) when removing the top cover.

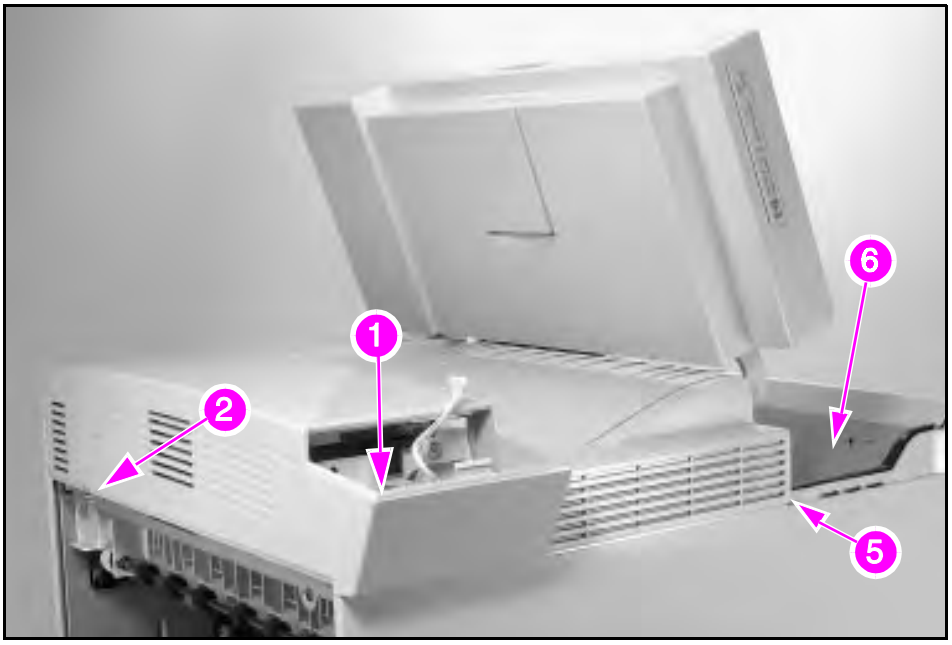
4. Lift (and hold) the top cover door up and carefully pull out on the cover to release the retaining tab (Figure 6-8, callout 5).
5. Hold the Face-Down Bin (Figure 6-8, callout 6) down while carefully and slowly lifting the top cover straight up until it clears the Face-Down Bin Full sensor flag and the Delivery Unit.

To Reinstall:

Caution Be careful not to damage the Face-Down Bin Full sensor flag (Figure 6-9, callout 4) when replacing the top cover.

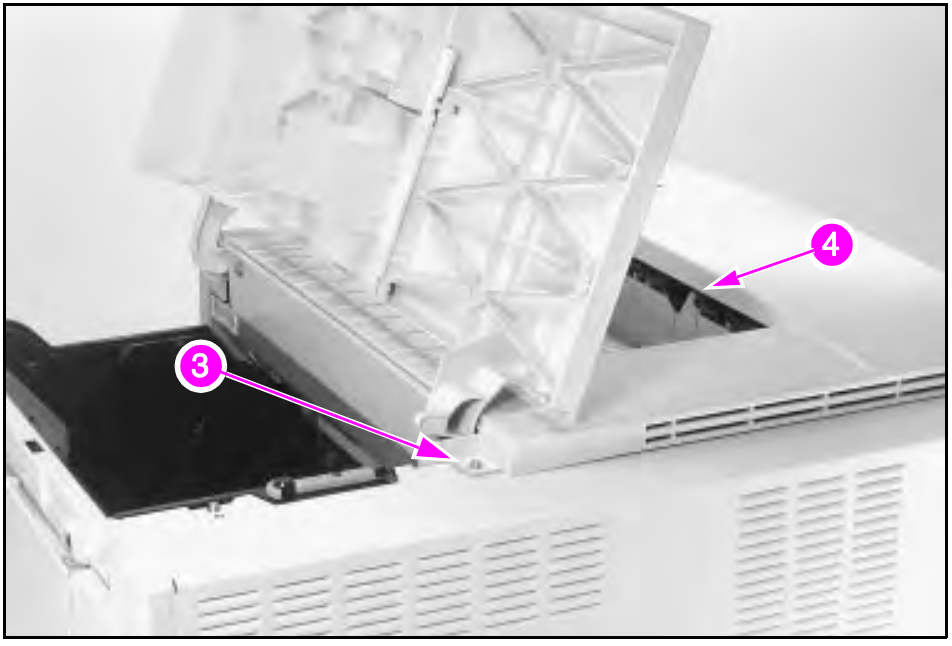
1. Hold the top cover door up and the Face-Down bin (Figure 6-8, callout 6) down while lowering the cover into position.
2. Refer to Figure 6-9, callout 4. Slide the Face-Down Bin under the Face-Down Bin Full sensor flag, and make sure that the cam (Figure 6-9, callout 4) at the rear of the top cover door is properly positioned while lowering the top cover into place.
3. Make sure that the top cover is seated properly and that the retaining tabs are in place before replacing the screws.

Figure 6-8



Top Cover (1 of 2)

Figure 6-9



Top Cover (2 of 2)

Delivery Unit (for Face-Down Bin)

1 Remove the following components:
- Formatter Assembly (see Figure 6-24)
- AC Access Cover (see Figure 6-3)
- Top Cover (see Figure 6-8)
- Front Cover (see Figure 6-5)

2 Unplug and re-route the fan cable out of the way (Figure 6-10, callout 1).

3 Remove (1) screw, CH101 (Figure 6-10 , callout 2 to loosen the grounding strip

4 Remove (1) screw, CH101 (Figure 6-10 , callout 3) and remove the metal fan shield.

5 Open the Diverter Assembly access door, remove (2) screws, CH101 (Figure 6-10, callout 4), release the plastic retaining tabs (Figure 6-10, callout 5), and remove the metal mounting bracket (Figure 6-10, callout 6).

6 Remove (2) screws, CH102 (Figure 6-11, callout 7), and (1) screw, CH101 (Figure 6-11, callout 8).

Caution Be careful not to damage the plastic sensor flags and gears on the left end of the Delivery Unit.

7 Lift the left end of the Delivery Unit approximately 1/8 inch to clear the alignment pin, and carefully rock it forward and backward while sliding it out of the chassis.

To Reinstall:

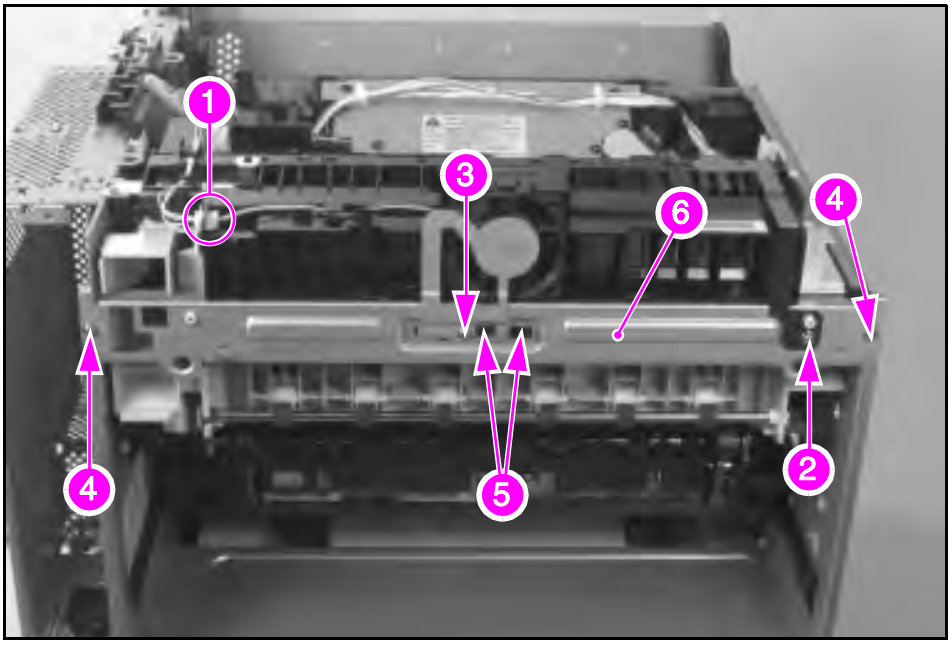
Caution Be careful not to damage the plastic sensor flags and gears on the left end of the Delivery Unit.

1 First, place the plastic edge on the right end of the Delivery Unit into the chassis. Make sure that the plastic support tab on the right end of the Delivery Unit slides on top of the chassis.

2 Make sure that the plastic sensor flags and gears on the left end of the Delivery Unit are properly positioned (not jammed).

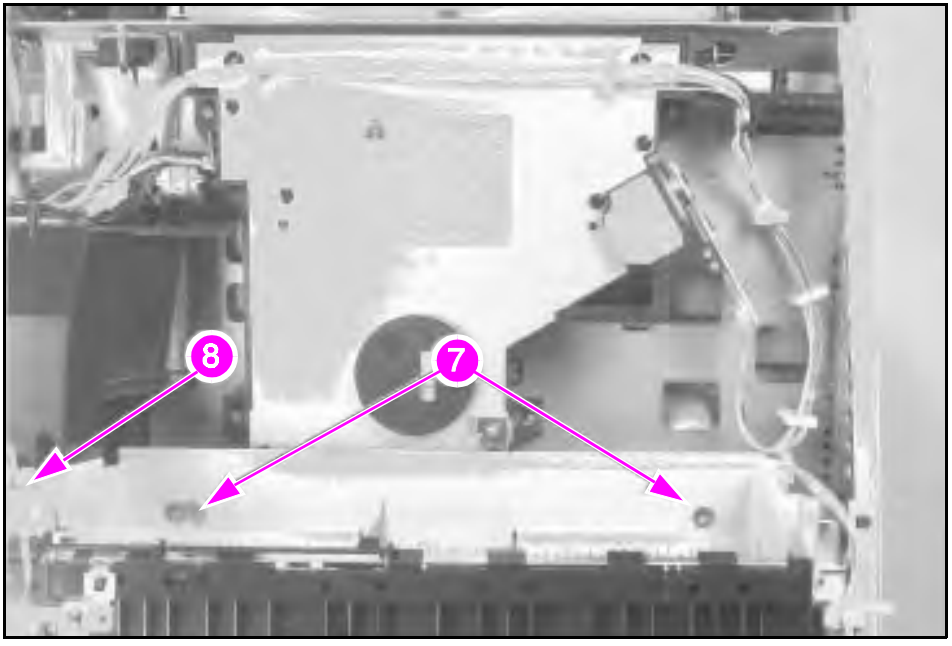
3 Replace the metal mounting bracket (Figure 6-10, callout 6) before replacing the Delivery Unit screws. Make sure that the plastic clips (Figure 6-10, callout 5) are snapped into place before tightening the mounting screws (Figure 6-10, callout 4).

Figure 6-10



Delivery Unit (1 of 2)

Figure 6-11



Delivery Unit (2 of 2)

Diverter Assembly

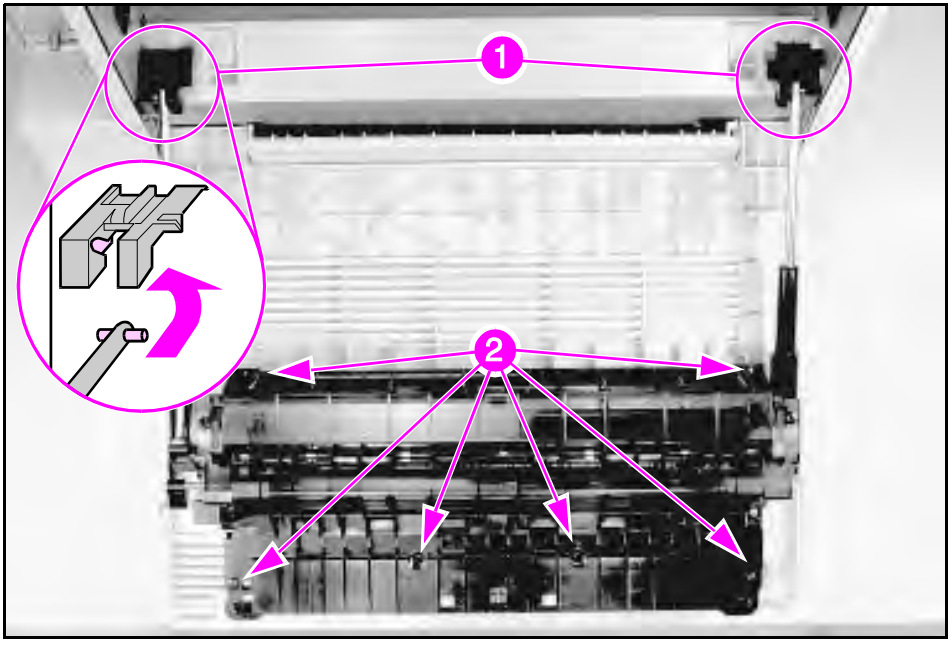
Caution Support the Diverter Assembly access door during this procedure to prevent damage to the plastic hinge pins.

1. Open the Diverter Assembly access door and release the support struts (Figure 6-12, callout 1) by sliding the strut ends forward and downward.
2. Remove (6) self-tapping screws, CH106 (Figure 6-12, callout 2).

Note The access door support struts will fall free when the Diverter Assembly is lifted away from the access door.

3. Lift the Diverter Assembly up and away from the access door.

Figure 6-12



Diverter Assembly

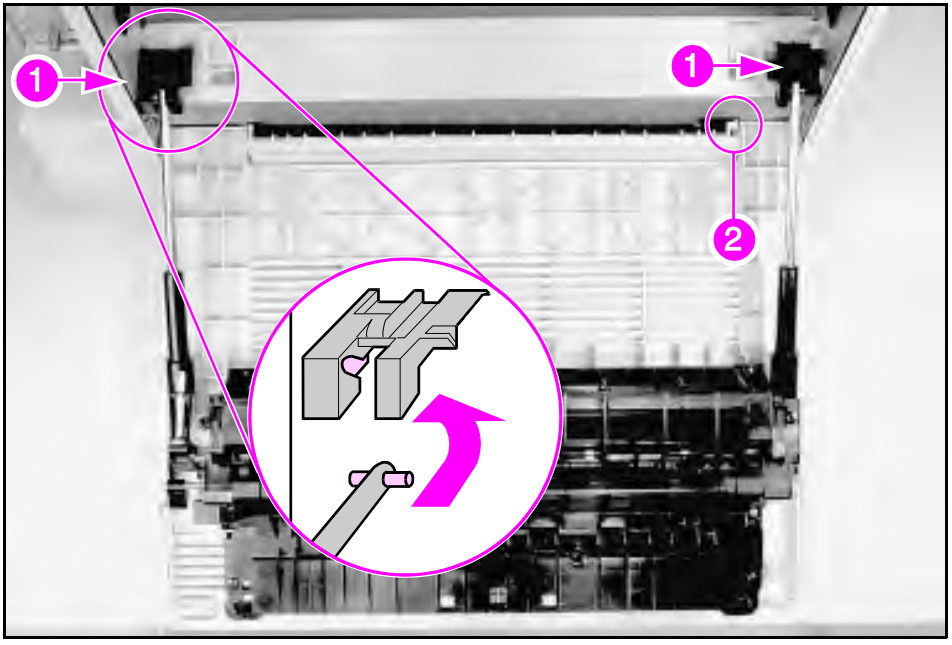
Door Assembly, Diverter

1. Open the Diverter access door and release the support struts (Figure 6-13, callout 1) by sliding the strut ends forward and downward.
2. Rotate the door up to align the flat sides of the right hinge pin with the retaining slot (Figure 6-13, callout 2), and lift upwards to release it from the retaining slot.
3. Continue lifting up on the right side of the door while pushing it to the left to rotate the left hinge pin out of its locating cavity.

To Reinstall:

1. Insert the left side of the door into position first, and then rotate the right side down to snap the hinge pins into position.
2. Reconnect the support struts to the chassis.

Figure 6-13

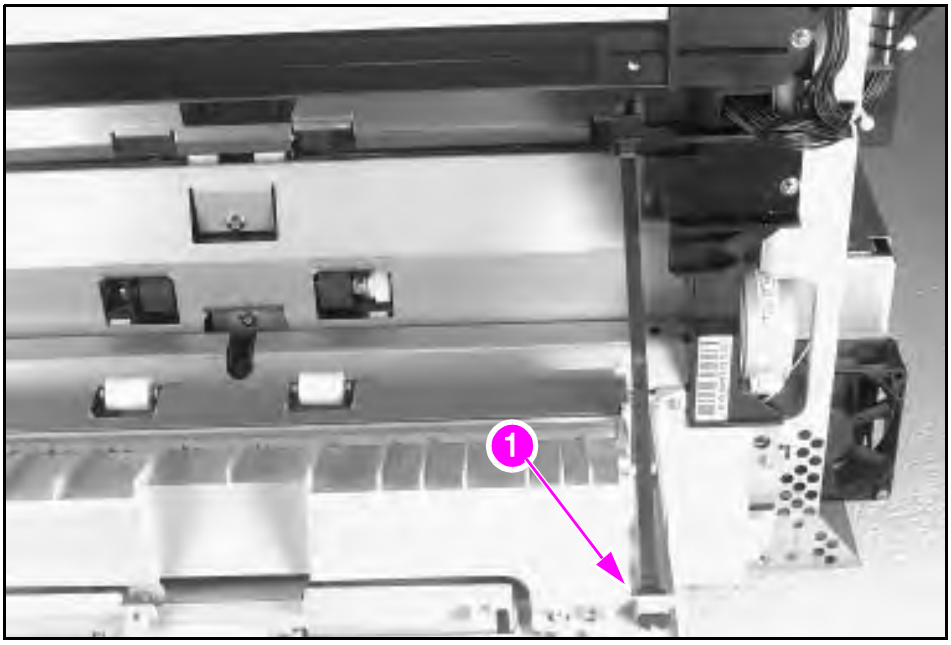


Diverter Door Assembly

Door Assembly, Right Lower

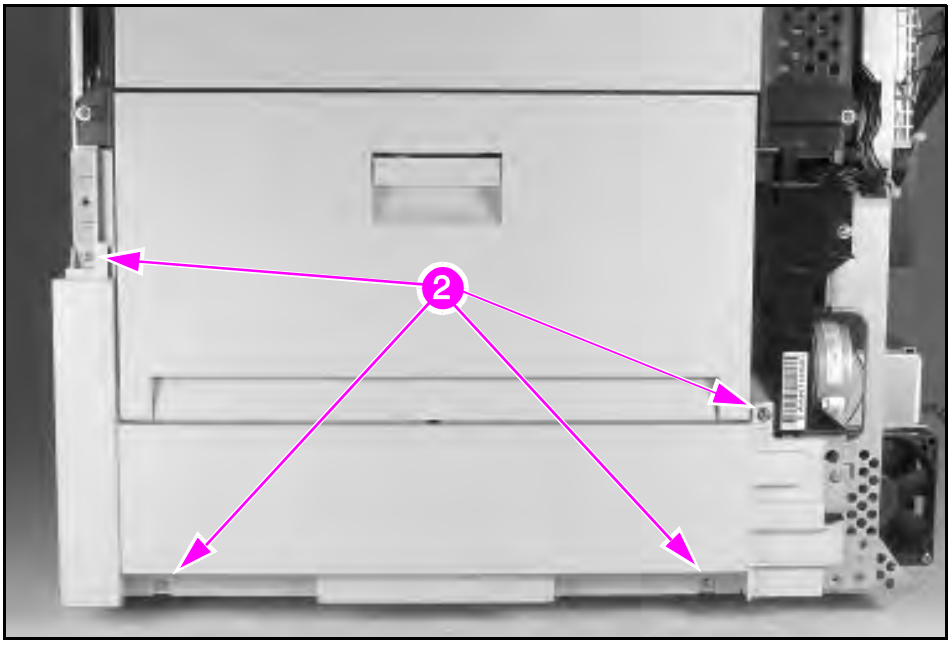
1. Remove the back cover assembly (see Figure 6-4).
2. Remove Tray 2 and Tray 3.
3. Open the Right Lower Door and release the lower end of the support strap (Figure 6-14, callout 1).
4. Remove (4) screws, CH102 (Figure 6-15, callout 2).
5. Release two retainer tabs from the inside of the Tray 3 cavity (Figure 6-16, callout 3).
6. Slide the door assembly away from the printer chassis.

Figure 6-14



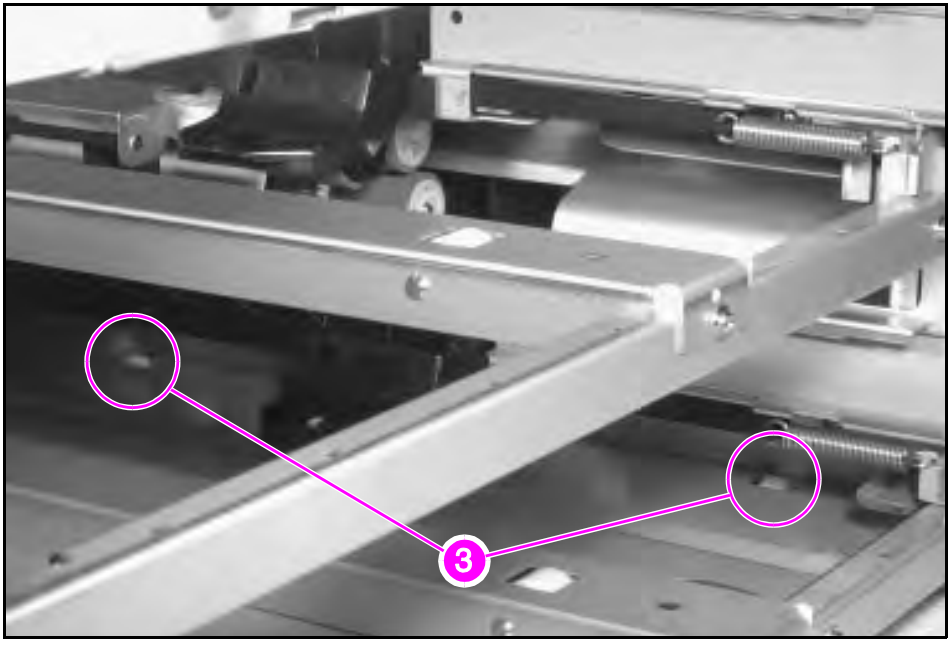
Right Lower Door Assembly (1 of 3)

Figure 6-15



Right Lower Door Assembly (2 of 3)

Figure 6-16



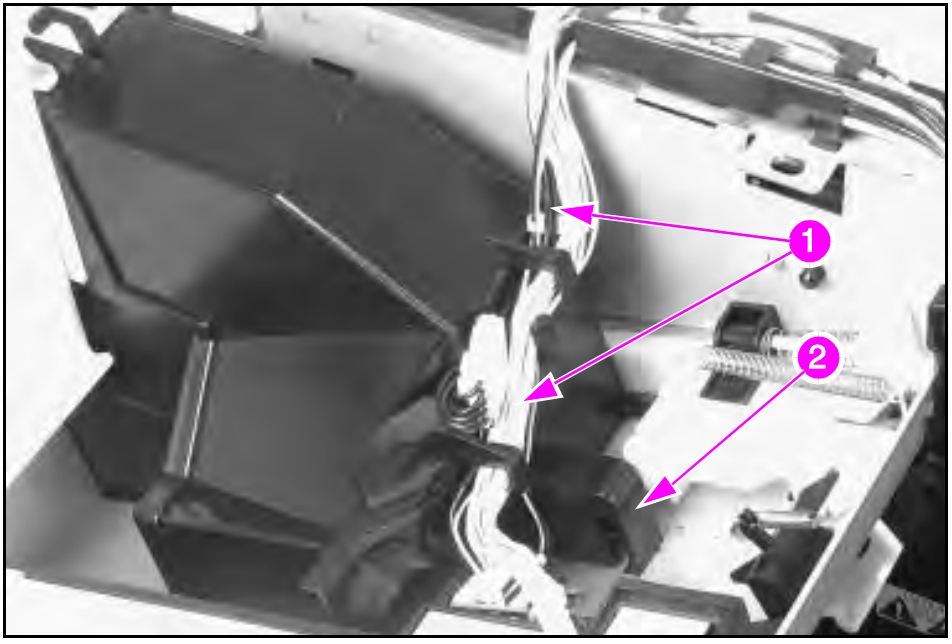
Right Lower Door Assembly (3 of 3)

Fan 1, Exhaust (Laser/Scanner) and Housing

Fan Housing

1. Remove the toner cartridge.
2. Remove the top cover (see Figure 6-8).
3. Remove and re-route cables away from fan housing (Figure 6-17, callout 1).
4. Release the housing retainer clip located inside the toner cartridge cavity (Figure 6-17, callout 2), and lift the housing up and out of the chassis.

Figure 6-17

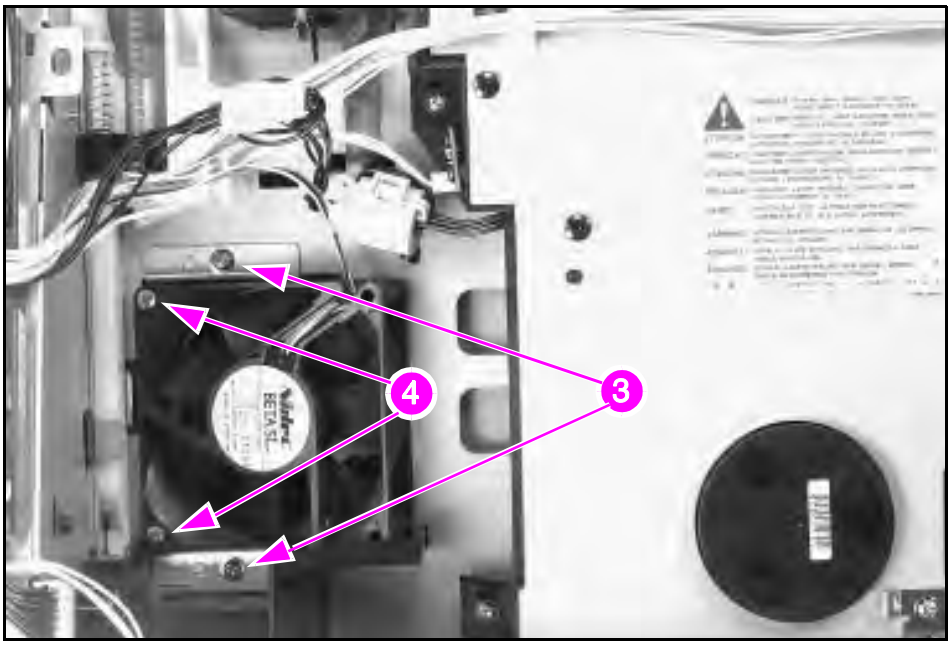


Fan 1, Laser/Scanner (1 of 2)

Fan Motor

1 Unplug the fan cable from the DC Controller PCA.
2 Remove (2) screws, CH101 (Figure 6-18, callout 3), and lift the fan and bracket assembly out of the chassis.
3 Remove (2) screws, CH104 (Figure 6-18, callout 4), to separate the fan motor from the bracket.

Figure 6-18

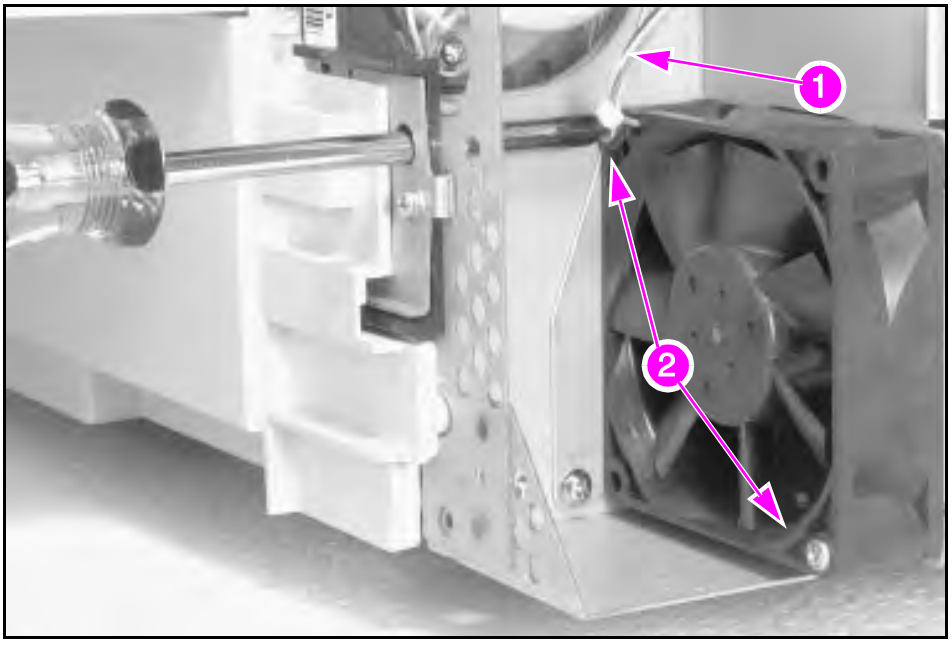


Fan 1, Laser/Scanner (2 of 2)

Fan 2, Exhaust (LVPS)

1 Remove back cover (see Figure 6-4).
2 Remove the fan cable from the DC Controller PCA (Figure 6-19, callout 1).
3 Remove (2) screws, CH104 (Figure 6-19, callout 2).

Figure 6-19



Fan 2, LVPS

Fan 3, Intake (Formatter) and Housing

Fan Motor

Note The fan motor (FM3) can be removed without removing the housing assembly.

1. Remove the back cover (see Figure 6-4).
2. Unplug the fan connector (Figure 6-20, callout 1).

Caution Do not bend the fan retainer clips upward. Release them by pinching.

3. Release the (2) retainer clips (Figure 6-20, callout 2), and slide the fan out of the housing assembly.

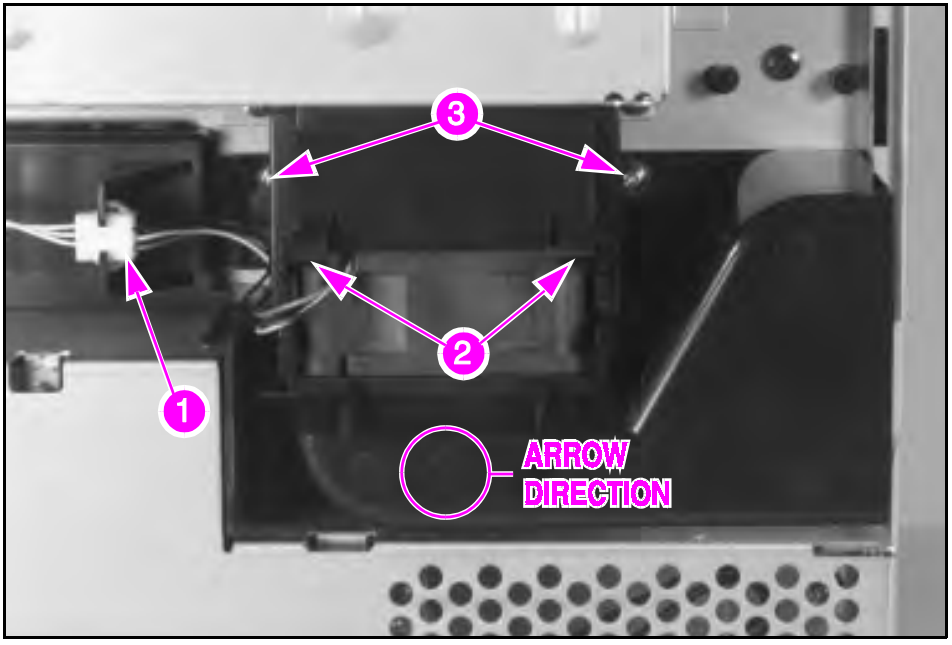
To Reinstall:

Make sure that the fan cable exits from the upper left corner

Fan Housing (See Fan 2)

4. Remove the back cover (see Figure 6-4).
5. Remove (2) screws, CH101 (Figure 6-20, callout 3).

Figure 6-20

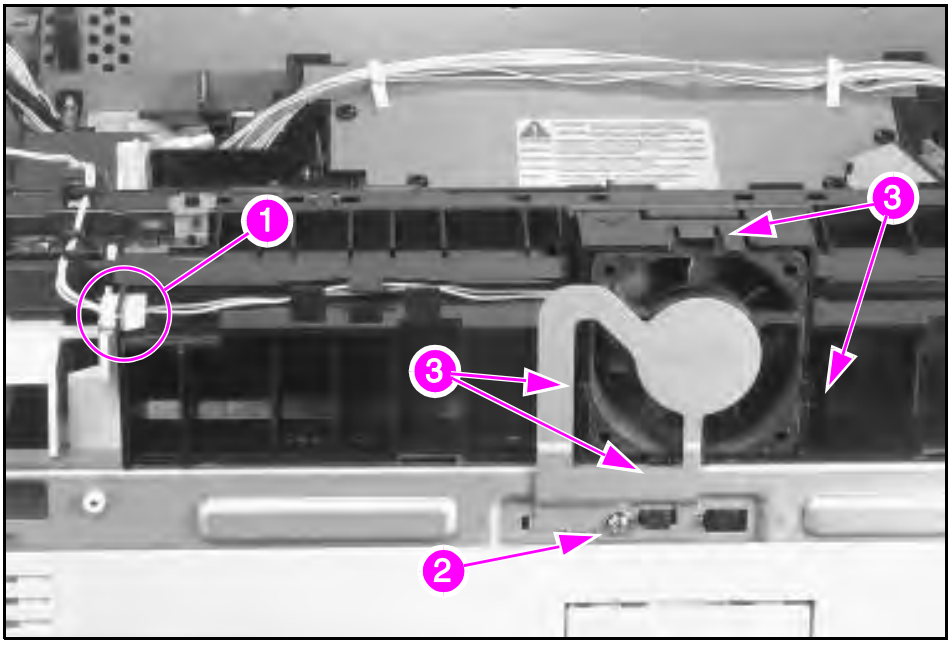


Fan 3, Formatter

Fan 4, Exhuast (Delivery Unit)

1. Remove the top cover (see Figure 6-8).
2. Unplug the fan cable (Figure 6-21, callout 1).
3. Remove (1) screw, CH101 (Figure 6-21, callout 2), and remove the metal fan shield.
4. Release (4) retainer clips (Figure 6-21, callout 3), and slide the fan forward out of the Delivery Unit Assembly.

Figure 6-21



Fan 4, Delivery Unit

Feeder Assembly

1. Open the left access door and remove the Duplex Unit (if installed).
2. Remove the Fuser Assembly (see Figure 6-25).
3. Open the Top Cover and remove the Toner Cartridge.
4. Remove the Transfer Roller Assembly (see Figure 6-51).
5. Remove the Registration Assembly (see Figure 6-42).
6. Unplug the sensor cable at the right side of the Feeder Assembly (Figure 6-22, callout 1).
7. Remove (2) screws, CH102 at the front of the Feeder Assembly (Figure 6-22, callout 2).
8. Remove (1) screw, CH101 at the back of the Feeder Assembly (Figure 6-23).

Note

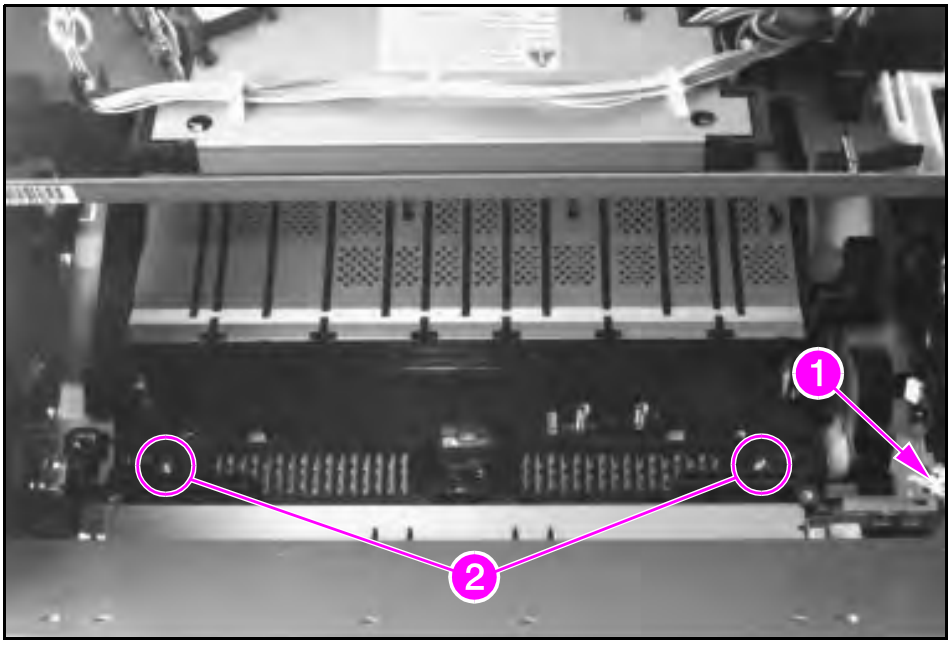
Removing the High Voltage Power Supply is recommended to ease the removal of the Feeder Assembly, primarily because of the contact points.

9. Release (4) plastic retaining tabs by moving them in the directions indicated in Figure 6-23 while carefully lifting upwards on the Feeder Assembly.
10. Remove the Feeder Assembly by lifting it upwards out of the Toner Cartridge cavity.

To Reinstall:

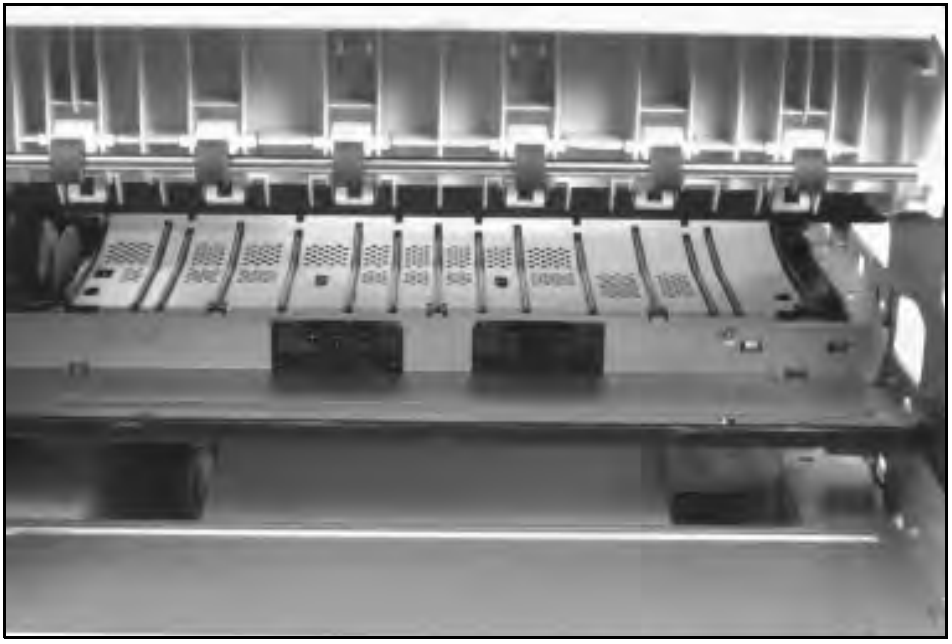
Make sure that the plastic retaining tabs are all properly seated before replacing the screws.

Figure 6-22



Feeder Assembly (1 of 2)

Figure 6-23

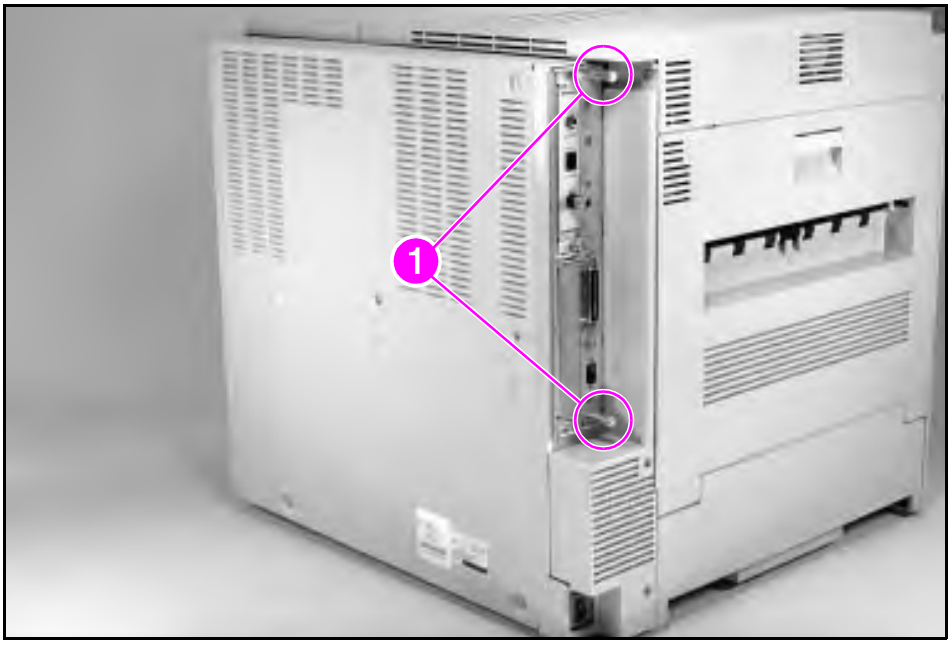


Feeder Assembly (2 of 2)

Formatter Assembly

1. If the Formatter is to be replaced, make sure to note the page count.
2. Loosen the two captive screws (Figure 6-24, callout 1) and slide the Formatter PCA out of the chassis.
3. After installation of a replacement Formatter, be sure to re-enter the serial number, page count, and maintenance count. (See the following instructions for more information.)

Figure 6-24



Formatter Assembly

Caution

The Heavy Media C3124A (5Si HM) has a Thermal Control PCA and wiring harness. The Thermal Control PCA is located in a SIMM slot on the formatter and must be removed and reinstalled on the replacement formatter. The formatter PCB is unique for the C3124A. See the parts section for correct ordering.

Setting Page Count, Maintenance Count, and Serial Number

The page count, maintenance count, and printer serial numbers are stored in Non-Volatile Memory. PAGECOUNT is the total number of images printed by the printer, MAINTCOUNT is the pagecount when the next preventive maintenance should be performed (every 350,000 images) (250,000 images with HP LaserJet 5Si Heavy Media printers), and S.N. is the printer serial number (also located on the printer back cover).

If it is necessary to replace the Formatter PCA, these numbers should be set to the current values to accurately reflect the age of the print engine. The procedures for setting these values are listed in Table 3-15.

Before removing the old Formatter PCA, print a PCL or PostScript Configuration Page to verify the current values, if possible.

Note

If it is not possible to print a PCL Configuration Page, try to verify the values before replacing the Formatter PCA by following steps 1 through 3, below.

After verifying the page count, maintenance count, and printer serial number from the old Formatter PCA, replace it with the new PCA.

1. Enter the Service Mode as previously described in this chapter.
2. When SERVICE MODE is displayed, press [Menus] to access the Service Menu.
3. Press [Items to display PAGECOUNT=, MAINTCOUNT=, and S.N.=.
4. Enter the appropriate values for each item.
5. Press [On Line] to exit Service Mode.

Fusing Assembly

1 Open the Diverter Assembly access door and remove the Duplex Unit if installed.

Caution

Use the upper levers to release the Fusing Assembly, NOT the lower levers. The lower levers set the pressure rollers inside the Fusing Assembly for envelope printing (down for single sheets, up for envelopes).

2 Release the Fusing Assembly by rotating the upper levers down (Figure 6-25, callout 1).

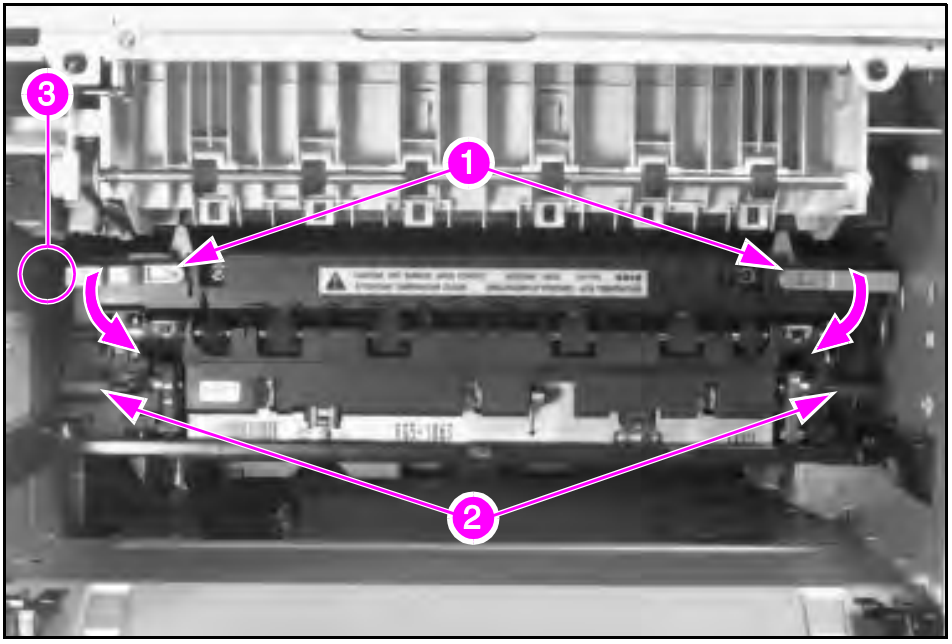
3 Remove the Fusing Assembly by lifting up on the finger handles (Figure 6-25, callout 2) while pulling outward.

To Reinstall:

1 Make sure that the Fuser Output sensor flag (Figure 6-25, callout 3) on the upper left corner of the Fusing Assembly rotates freely.

2 Make sure that the lower levers are set down for single sheets. If having trouble printing envelopes, move the levers up. Move the levers back down when done.

Figure 6-25



Fusing Assembly

Laser/Scanner Assembly

Caution The Laser Scanner diode is extremely sensitive to ESD.

1. Remove the toner cartridge.
2. Remove the top cover (see Figure 6-8).
3. Unplug three cable connectors (Figure 6-26, callout 1).
4. Re-route the cable running across the top of the assembly so that it is out of the way.

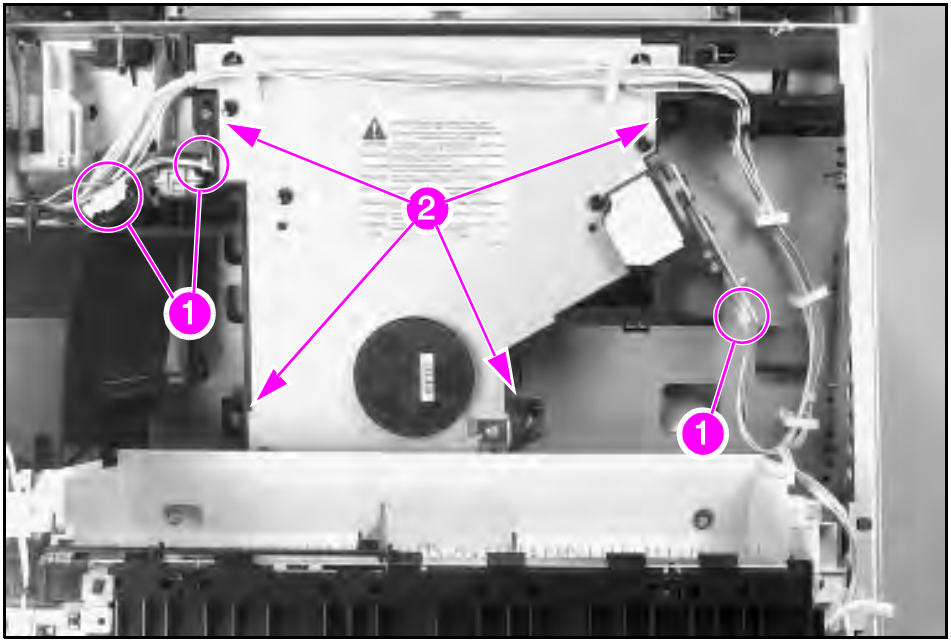
Caution Do not touch the scanner mirror located under the forward edge of the assembly. Use approved ESD handling procedures when touching the Beam Detect PCA.

5. Remove (4) screws, CH105 (Figure 6-26, callout 2).

To Reinstall:

Make sure that the locator pins are properly seated.

Figure 6-26



Laser/Scanner Assembly

Main Gear Assembly

1 Remove the following components in the order listed:
- Toner Cartridge
- Tray 1
- Tray 2
- Transfer Roller Assembly (see Figure 6-51)
- Back Cover Assembly (see Figure 6-4)
- Tray 1 Assembly (see Figure 6-52)
- Right Lower Door Assembly (see Figure 6-14)
- Paper Input Unit (see Figure 6-31)
- HVPS (see Figure 6-40)
- Main Motor (see Figure 6-30)

2 Remove (2) screws, CH102 (Figure 6-27, callout 1).

Caution Be careful not to damage the plastic gears when removing the Main Gear Assembly.

Note A slight gentle rocking motion will help free the Main Gear Assembly from the printer.

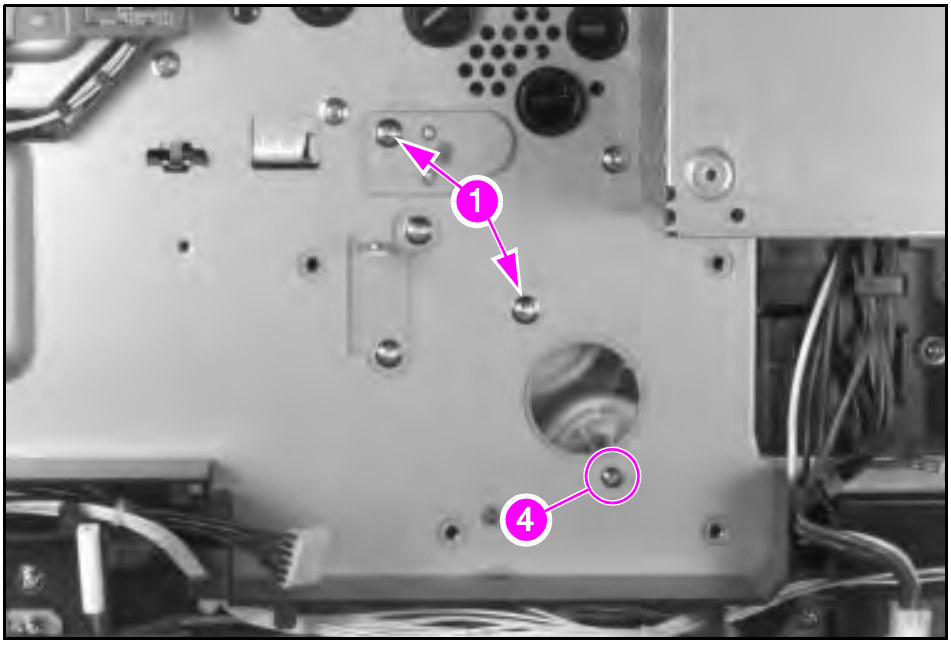
3 From inside of the PIU cavity, carefully tilt the bottom of the Main Gear Assembly away from the chassis and down to free the gear mechanisms.

To Reinstall:

Note A slight gentle rocking motion will help install the Main Gear Assembly as it is rotated into place.

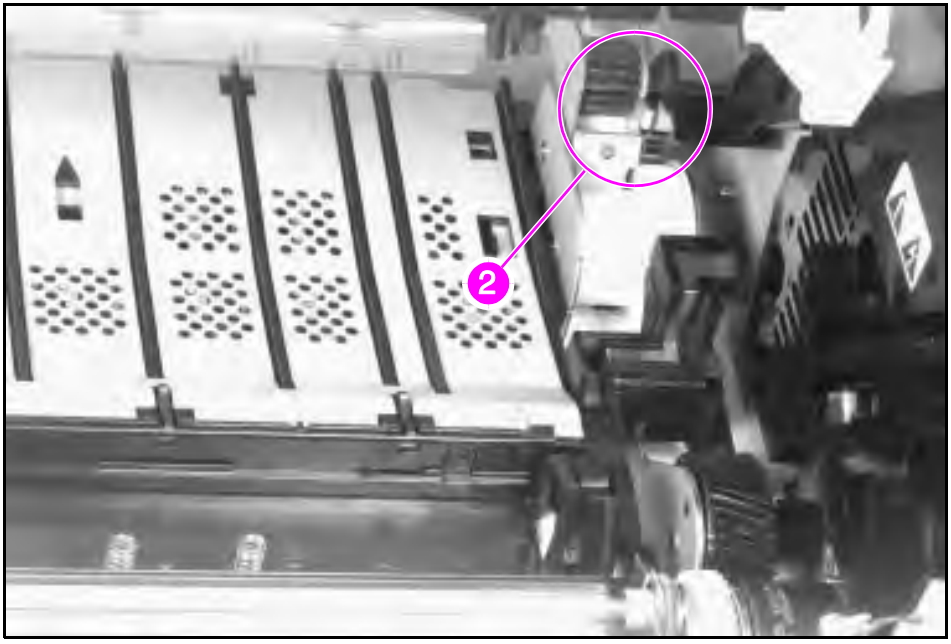
1 Observe the gear assembly position from inside the toner cartridge cavity (Figure 6-28, callout 2).
2 First, tilt the top of the assembly inward and insert the upper back part of the assembly in place (Figure 6-29, callout 3).
3 Continue rotating the assembly upwards into place.
4 Make sure that the locating pins are properly aligned and that the gear assembly fits tightly against the chassis before replacing the screws (Figure 6-27, callout 4).

Figure 6-27



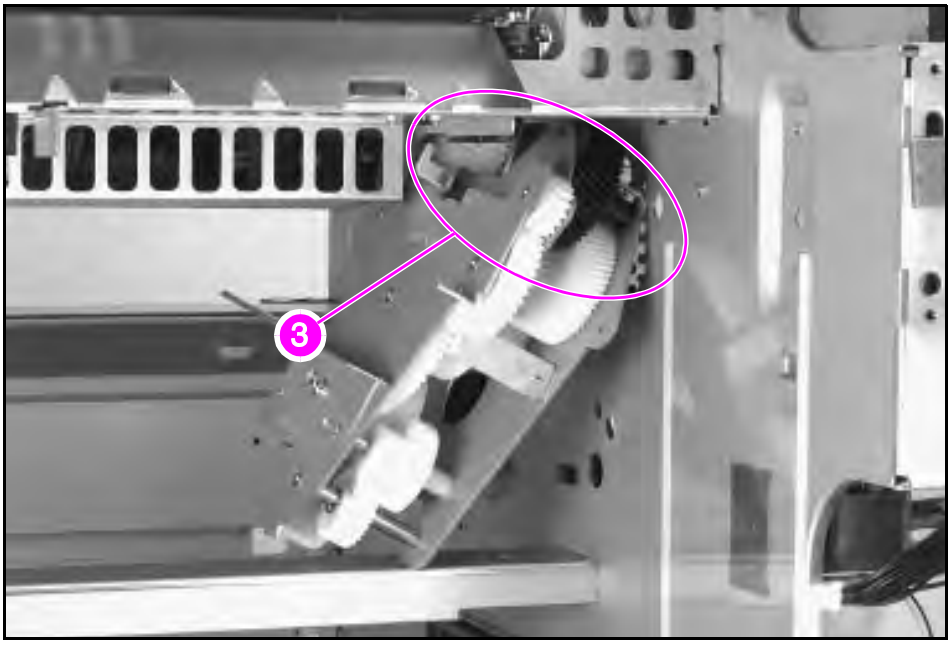
Main Gear Assembly (1 of 3)

Figure 6-28



Main Gear Assembly (2 of 3)

Figure 6-29



Main Gear Assembly (3 of 3)

Main Motor Assembly

1 Remove the back cover (see Figure 6-4).
2 Remove the HVPS (see Figure 6-40).
3 Unplug the connector (Figure 6-30, callout 1).

Caution

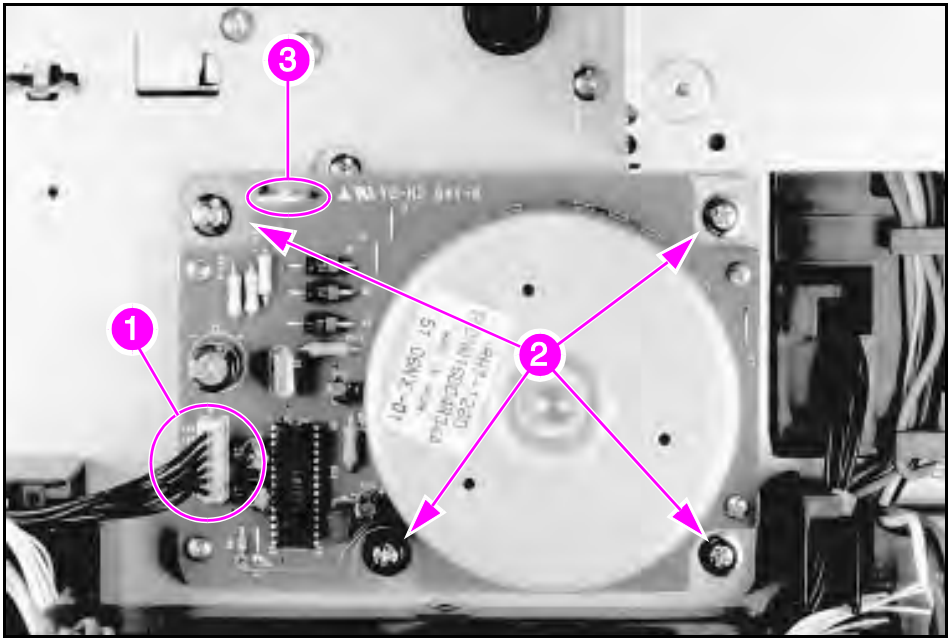
Be careful when removing the Main Motor. The steel drive shaft can damage the plastic gears.

4 Remove (4) screws, CH103 (Figure 6-30, callout 2).

To Reinstall:

Align the Main Motor to the chassis with the locator tab (Figure 6-30, callout 3), and the machined ring around the output shaft.

Figure 6-30



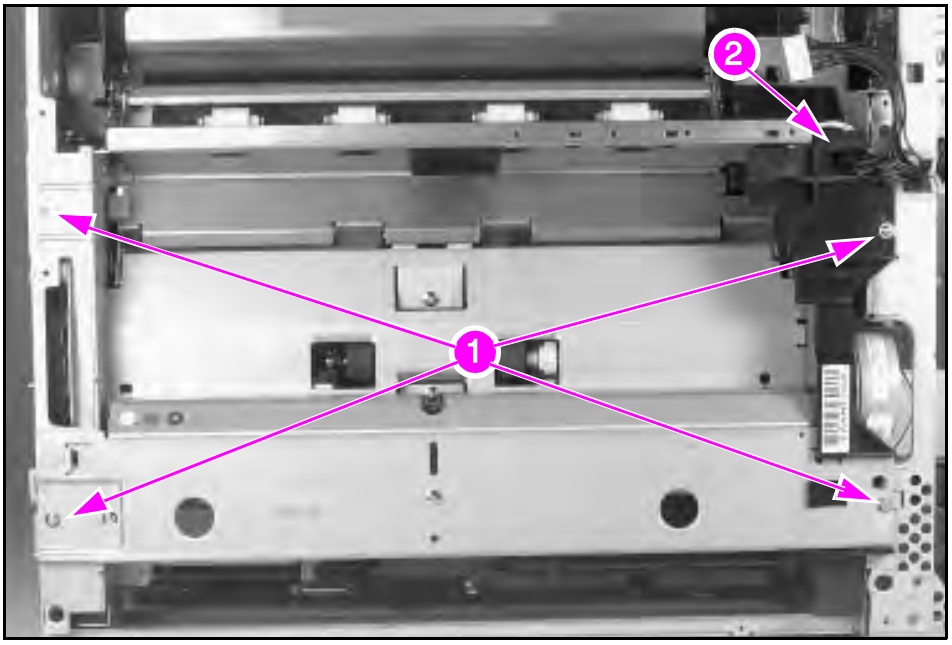
Main Motor

Paper Input Unit (PIU)

Caution Remove both Tray 2 and Tray 3 to prevent damage to the PIU plastic sensor flags.

1. Remove Tray 2 and Tray 3.
2. Remove the back cover (see Figure 6-4).
3. Remove the Tray 1 Assembly (see Figure 6-52).
4. Remove the Right Lower Door Assembly (see Figure 6-14).
5. Remove (4) screws, CH102 (Figure 6-31, callout 1).
6. Slide the assembly out from the chassis approximately 3 inches and unplug the connector inside the right end (Figure 6-31, callout 2).
7. Continue sliding the assembly out of the chassis.

Figure 6-31



Paper Input Unit

To Reinstall:

Make sure that Trays 2 and 3 are removed when reinstalling the Paper Input Unit.

Note The LaserJet 5Si HM printer (C3124A) requires a unique paper input unit.

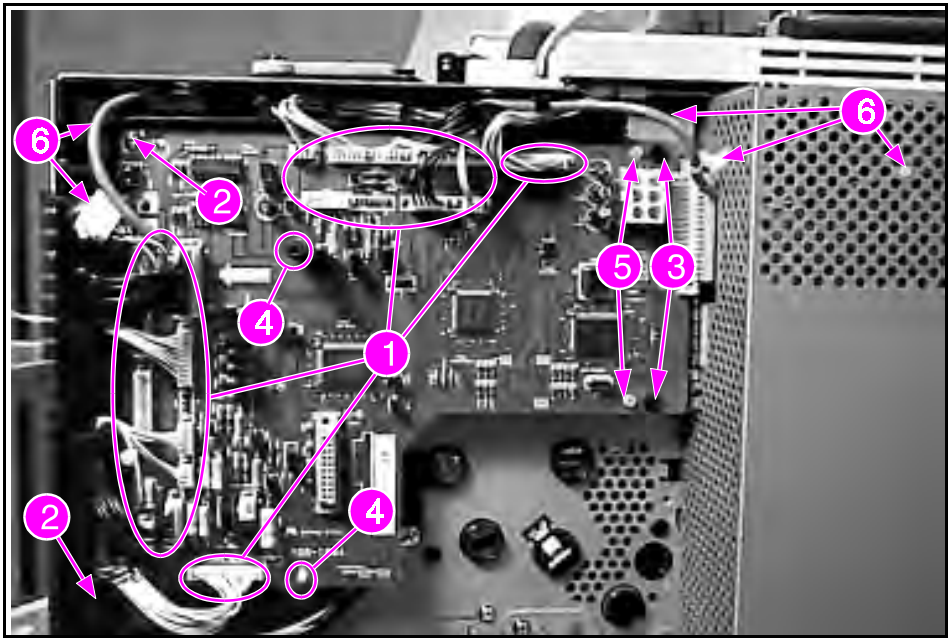
PCA, DC Controller

1 Remove the Formatter Assembly (see Figure 6-24).
2 Remove the back cover (see Figure 6-4).
3 Remove the High Voltage Power Supply (see Figure 6-40).
4 Unplug (18) connectors from the PCA (Figure 6-32, callout 1).
Note: For the 5Si HM (C3124A), you also need to disconnect the Thermal Control Cable (Figure 6-32, callout 6).
5 Remove (2) screws, CH101 (Figure 6-32, callout 2), from the left side of the PCA, and (2) self-tapping screws, CH106 (Figure 6-32, callout 3) from the right side of the PCA.
6 Release two retaining clips (Figure 6-32, callout 4) and carefully tip the left side of the PCA outward to clear the Formatter PCA connector from the card cage.

To Reinstall:

Make sure the retaining clip posts (Figure 6-32, callout 4) and the two locator pins (Figure 6-32, callout 5) are properly aligned.

Figure 6-32



DC Controller PCA

PCA, Output Paper Sensor

1 Remove the following components in the order listed:
- Toner Cartridge
- Formatter Assembly (see Figure 6-24)
- AC Access Cover (see Figure 6-3)
- Top Cover (see Figure 6-8)
- Back Cover (see Figure 6-4)
- Fan 3 and Housing Assembly (see Figure 6-20)
- HVPS (see Figure 6-40)
- DC Controller PCA (see Figure 6-32)

2 Remove (7) screws, CH101 (Figure 6-33, callout 1) and remove the Formatter PCA cage.

3 Remove (5) screws, CH101 (Figure 6-34, callout 2) and remove the Formatter PCA grounding strip.

4 Remove (3) screws, CH102 (Figure 6-35, callout 3) and remove the plastic PCA shield. (Note the positioning of the metal grounding fingers at the left of the shield.)

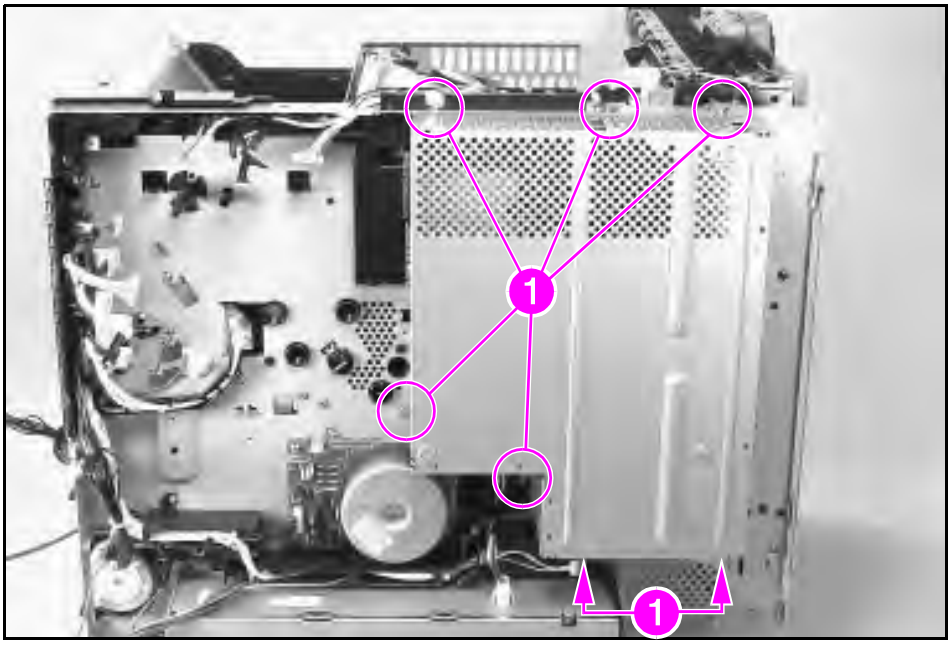
5 Unplug the connector (Figure 6-36, callout 4).

6 Remove (2) screws, CH101 (Figure 6-36, callout 5), and unplug the connector on the back side of the PCA.

To Reinstall:

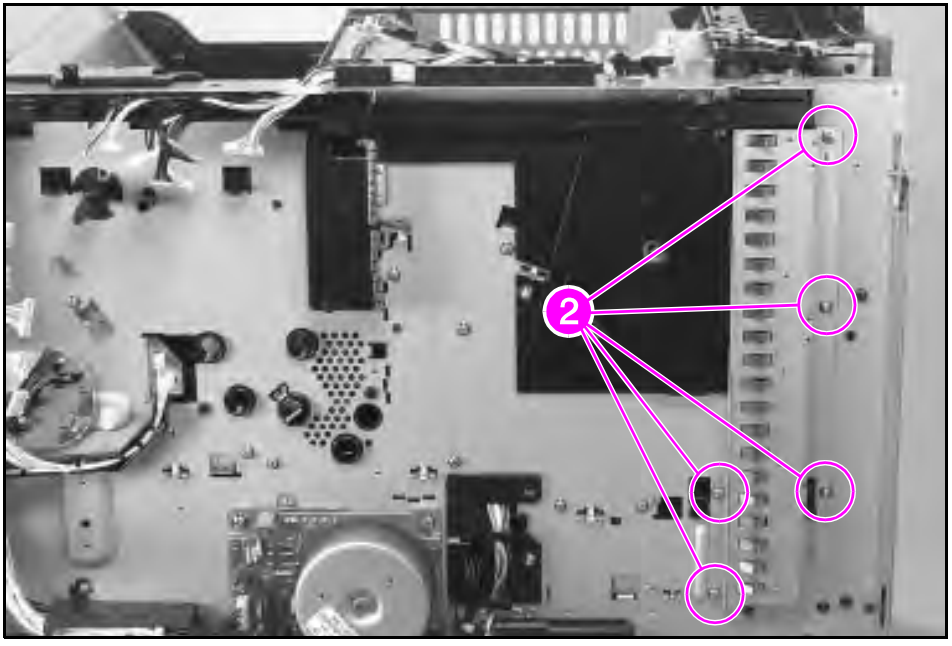
Make sure that the sensor flags rotate freely, and that the top cover and Diverter doors operate the microswitch (SW1401).

Figure 6-33



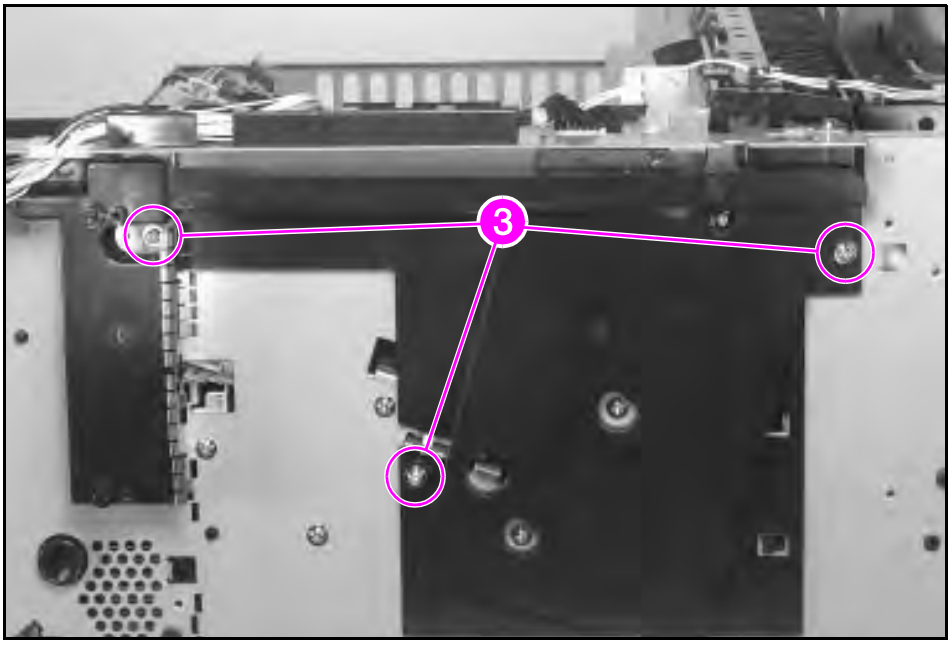
Output Paper Sensor PCA (1 of 4)

Figure 6-34



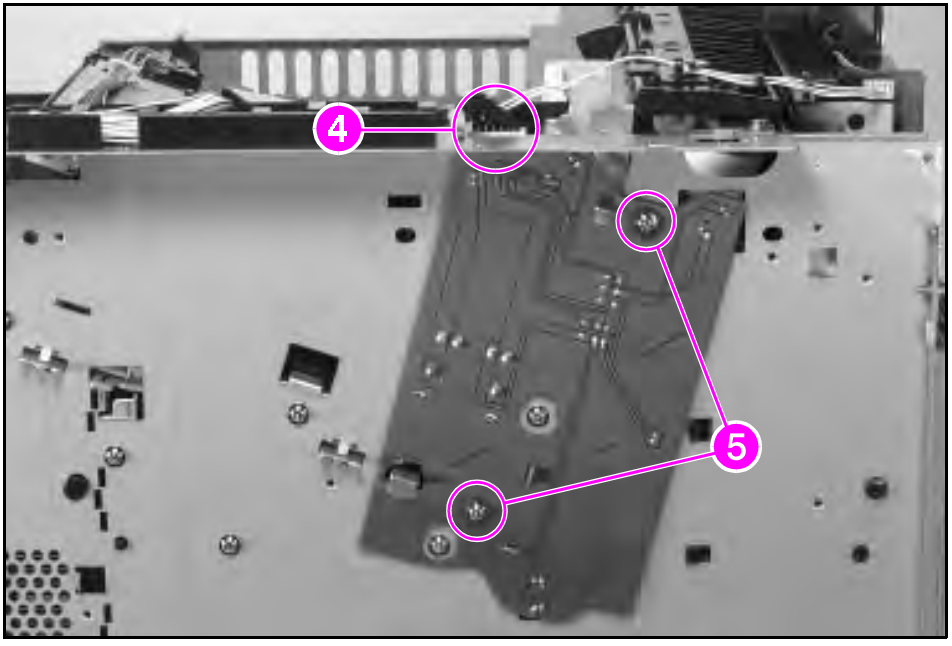
Output Paper Sensor PCA (2 of 4)

Figure 6-35



Output Paper Sensor PCA (3 of 4)

Figure 6-36



Output Paper Sensor PCA (4 of 4)

PCA, Paper Size

1 Remove the following components in the order listed:
- Toner Cartridge
- Trays 2 and 3
- Back Cover (see Figure 6-4)
- LVPS (see Figure 6-41)

2 Unplug the fan cable from the left side of the connector (Figure 6-37, callout 1), remove (1) screw, CH102 (Figure 6-37, callout 2), and remove the plastic shield (Figure 6-37, callout 3).

Note

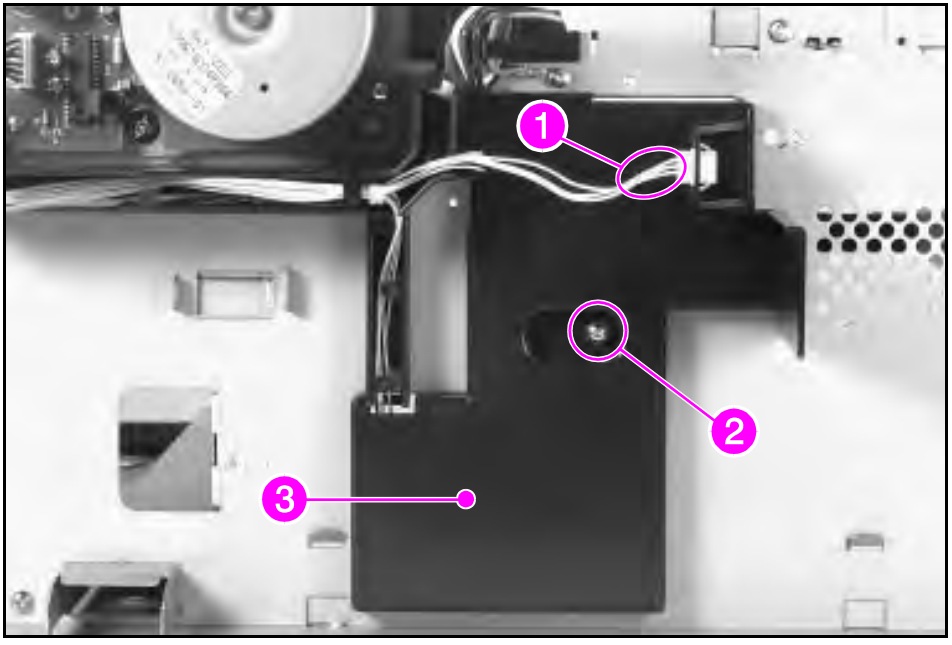
The Paper Size PCA for Tray 2 (Figure 6-38, callout 4) is identical to the PCA for Tray 3 (Figure 6-38, callout 5). The removal procedure for both PCAs is the same.

3 Unplug the connector (Figure 6-38, callout 6), remove (3) screws, CH101 (Figure 6-38, callout 7), and remove the PCA and actuating fingers.

To Reinstall:

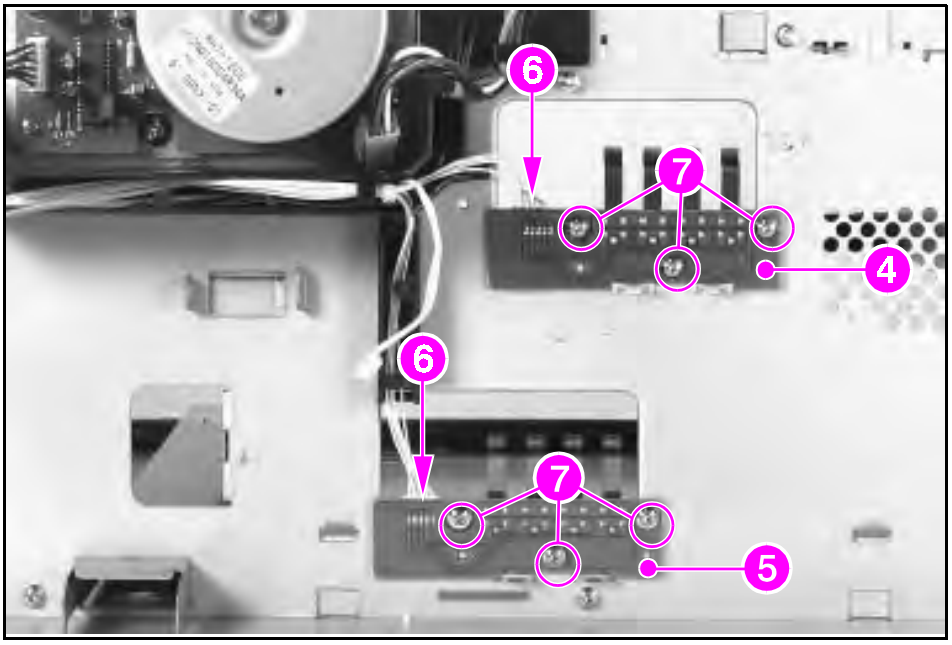
Make sure that the actuating fingers are aligned with the locating pins (Figure 6-39, callout 8).

Figure 6-37



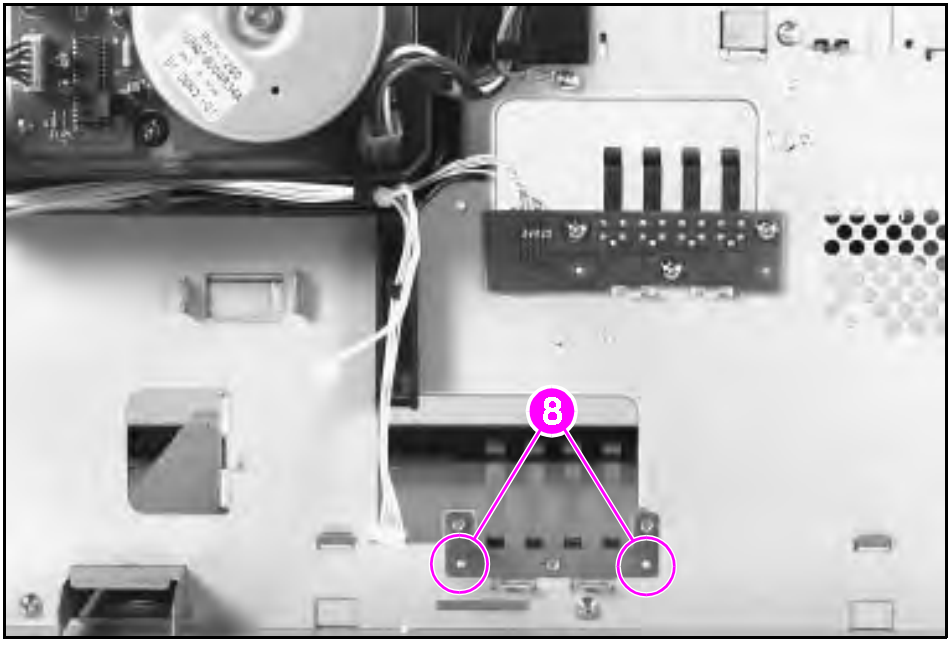
Paper Size PCA (1 of 3)

Figure 6-38



Paper Size PCA (2 of 3)

Figure 6-39



Paper Size PCA (3 of 3)

Power Supply, High Voltage (HVPS)

1. Remove the back cover (see Figure 6-4).
2. Unplug the cable from the LVPS to the DC Controller PCA (Figure 6-40, callout 1), and move it out of the way.
3. Unplug the connector from the bottom of the HVPS (Figure 6-40, callout 2).

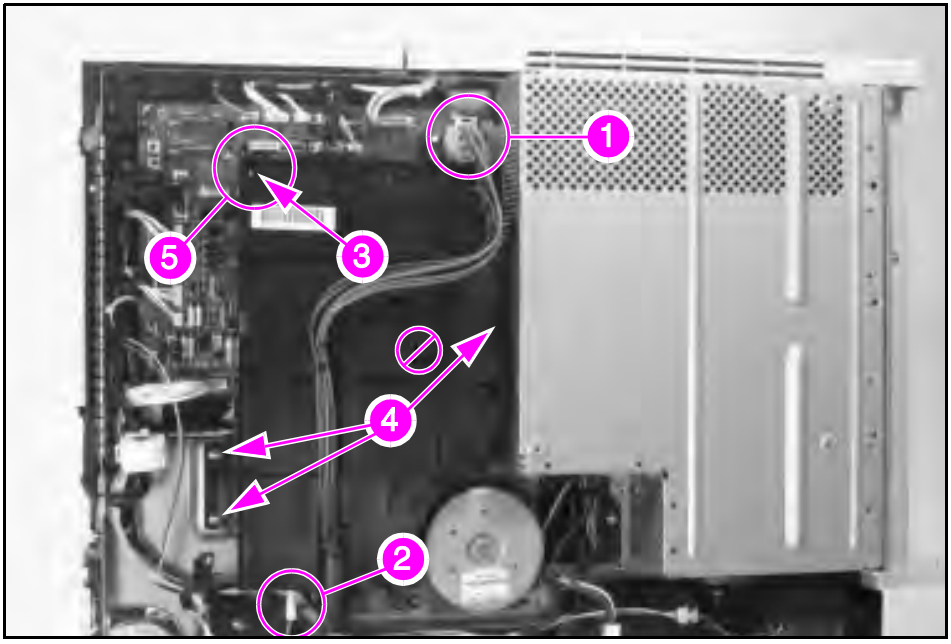
Note DO NOT remove the screw indicated in Figure 6-40 by the null symbol (ø).

4. Remove (1) self-tapping screw, CH106 (Figure 6-40, callout 3), and (3) screws, CH101 (Figure 6-40, callout 4).

To Reinstall:

Make sure that the plastic alignment pin (Figure 6-40, callout 5), the connector pins and the high voltage contacts are properly aligned before replacing the screws.

Figure 6-40

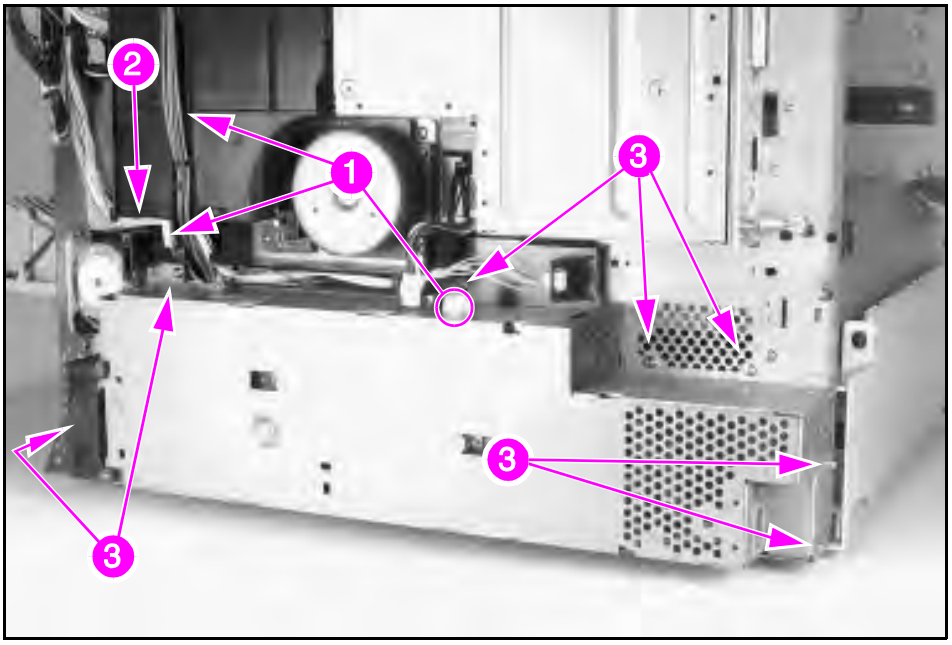


High Voltage Power Supply

Power Supply, Low Voltage (LVPS)

1. Remove the Formatter Assembly (see Figure 6-24).
2. Remove the back cover (see Figure 6-4).
3. Remove Fan 3 and its Housing Assembly (see Figure 6-20).
4. Unplug (3) LVPS connectors (Figure 6-41, callout 1).
5. Unplug the LVPS fan (FM1) cable from the DC Controller (Figure 6-41, callout 2).
6. Remove (7) screws, CH101 (Figure 6-41, callout 3).

Figure 6-41



Low Voltage Power Supply

Registration Assembly

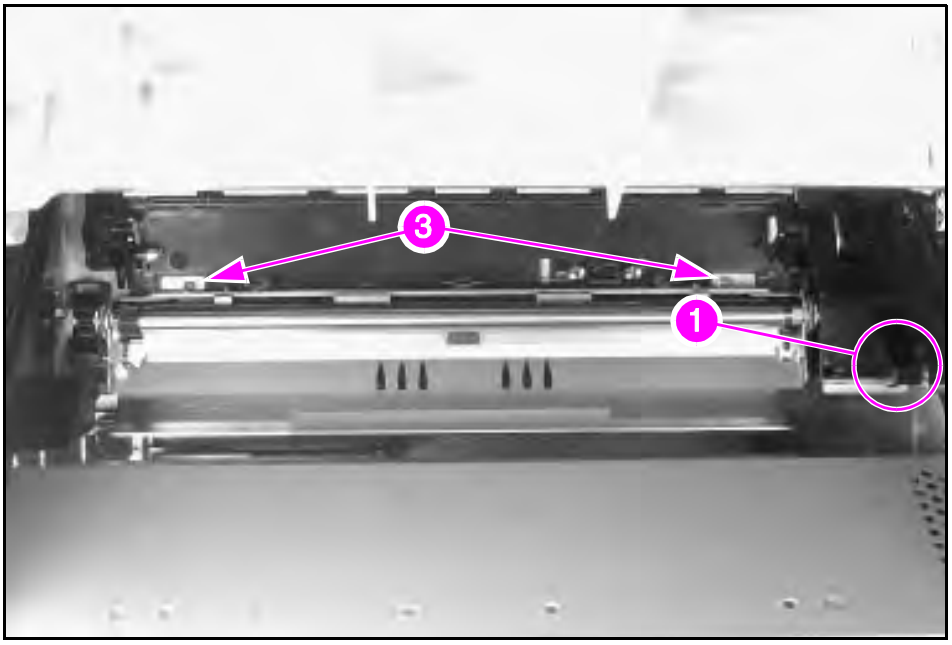
1. Open the top cover door and remove the toner cartridge.
2. Remove the Transfer Roller Assembly (see Figure 6-51).
3. Remove the Main Gear Train Shield. Release the retainer clip (Figure 6-43, callout 1) and lift the forward end up.
4. Unplug the clutch cable from the clutch on the right end of the Registration Assembly (Figure 6-42, callout 2).
5. Remove (2) screws, CH102, at rear of assembly (Figure 6-43, callout 3).
6. Lift the registration guide and remove (2) screws, CH102, at front of assembly (Figure 6-44, callout 4).

To Reinstall:

1. Lift the registration guide and place the Registration Assembly into position.
2. Lift the registration guide and make sure that the locator pin near the right screw is properly positioned.
3. **Make sure that the grounding strap is under the left screw.**
4. Be sure to connect the clutch cable connector.
5. After replacing the (4) screws, replace the Main Gear Train Shield. Tilt the top outward, tuck the lower tabs in place, and snap the cover down into position.

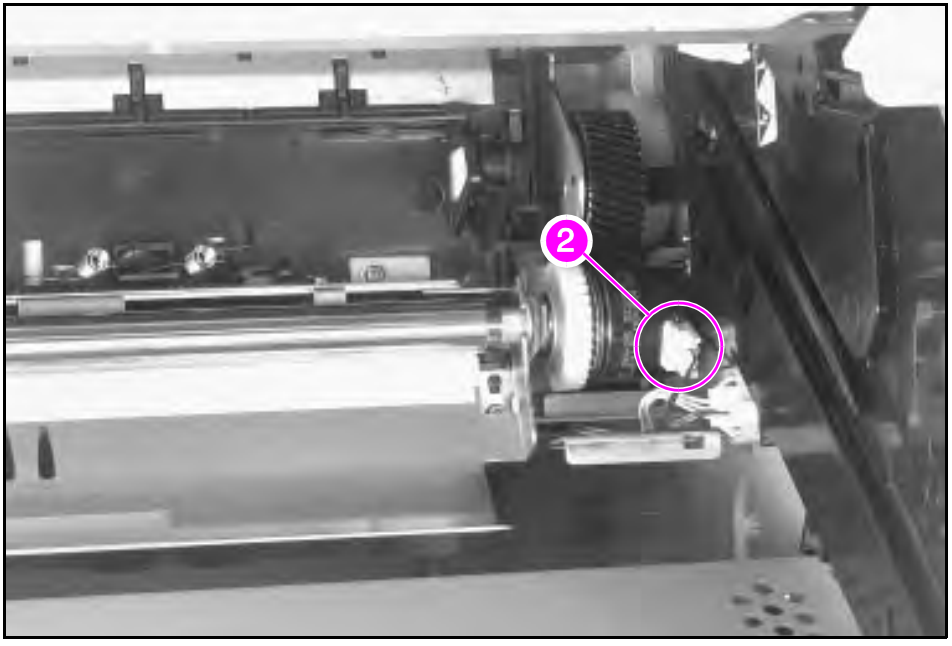
Note The LaserJet 5Si HM (C3124A) requires a unique Registration Assembly.

Figure 6-43



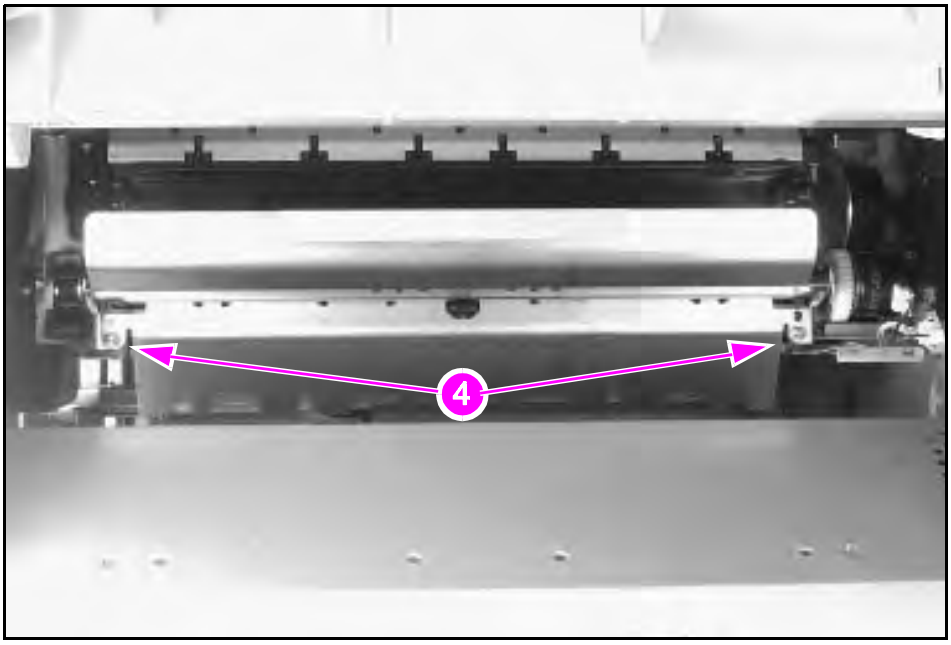
Registration Assembly (1 of 3)

Figure 6-42



Registration Assembly (2 of 3)

Figure 6-44



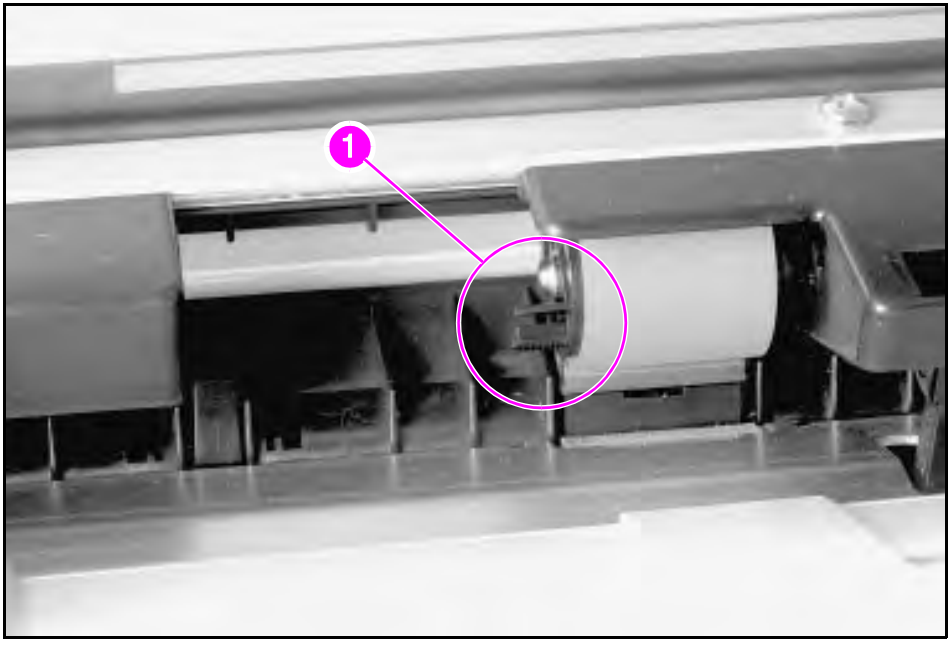
Registration Assembly (3 of 3)

Roller and Separation Pad, Tray 1

Feed Roller

1. Open Tray 1 door and remove the plastic shield.
2. Pinch retainer tabs together (Figure 6-45, callout 1) and slide the roller to the left, off of the shaft.

Figure 6-45



Tray 1 Feed Roller

Separation Pad

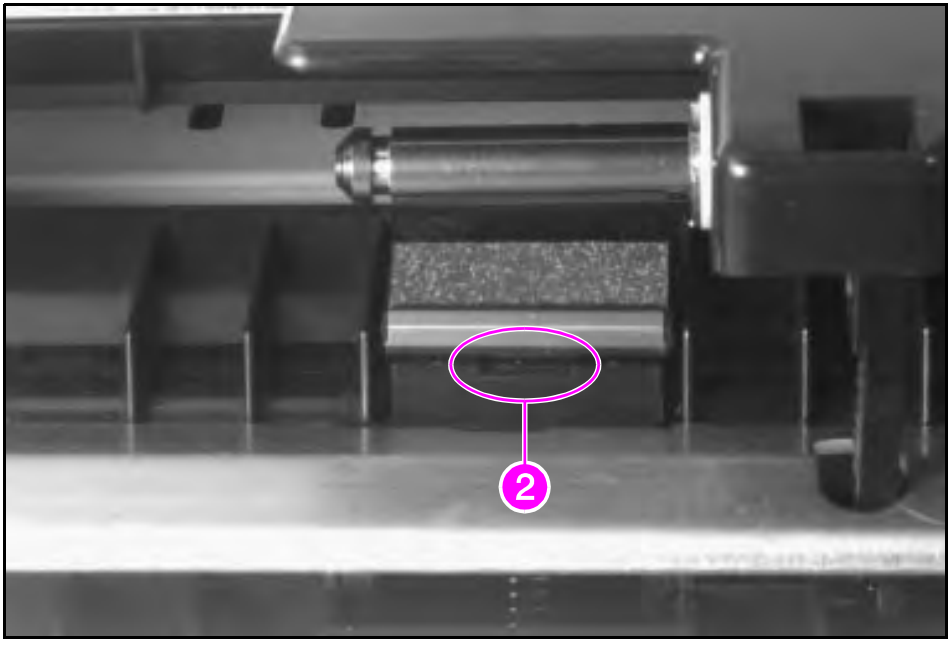
Open Tray 1 door and remove the Feed Roller

Insert a flat bladed screwdriver into the slot (Figure 6-46, callout 2) and carefully pry the separation pad upwards out of its retaining notches.

To Reinstall:

Make sure the metal edge of the Separation pad faces forward.

Figure 6-46



Tray 1 Separation Pad

Rollers: Tray 2 & 3, Pickup, Feed, and Separation

Note

There are three rollers for each tray: The Pickup Roller, the Feed Roller, and the Separation Roller. The Feed and Separation Rollers are interchangeable with each other and between trays. The Pickup Rollers are interchangeable between trays.

- Tray 2 Pickup Roller: Figure 6-47, callout 1
- Tray 2 Feed Roller: Figure 6-47, callout 2
- Tray 2 Separation Roller: Figure 6-47, callout 3
- Tray 3 Pickup Roller: Figure 6-47, callout 4
- Tray 3 Feed Roller: Figure 6-47, callout 5
- Tray 3 Separation Roller: Figure 6-47, callout 6

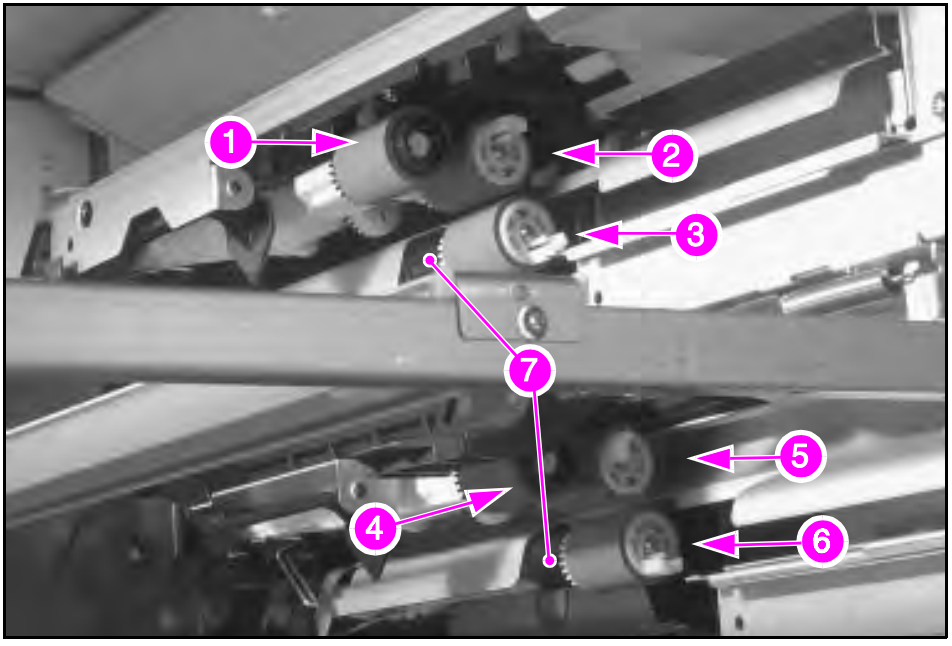
1 Remove Trays 2 and 3.

Note

The Feed and Separation rollers have protruding tabs, and the pickup rollers have recessed retaining tabs. Be careful not to lose the plastic torque limiters located behind the Separation Rollers (Figure 6-47 callout 7).

2 From inside the tray cavity, remove the rollers by pinching the retainer tabs together and sliding the roller off the shaft.

Figure 6-47



Tray 2 and 3, Pickup, Feed, and Separation Rollers

Sensor, Paper Input Unit (PS2)

1 Remove the following components in the order listed:
- Toner Cartridge
- Trays 2 and 3
- Transfer Roller (see Figure 6-51)
- Registration Assembly (see Figure 6-43)
- Front Cover (see Figure 6-5)
- Tray 1 Assembly (see Figure 6-52)
- Right Lower Door Assembly (see Figure 6-14)

Note

The sensor retaining tabs are released from above, and the sensor is removed and replaced from below.

2 Release the retaining tabs (Figure 6-48, callout 1) on the right end of the sensor and rotate the sensor down to free the tabs on the left end.

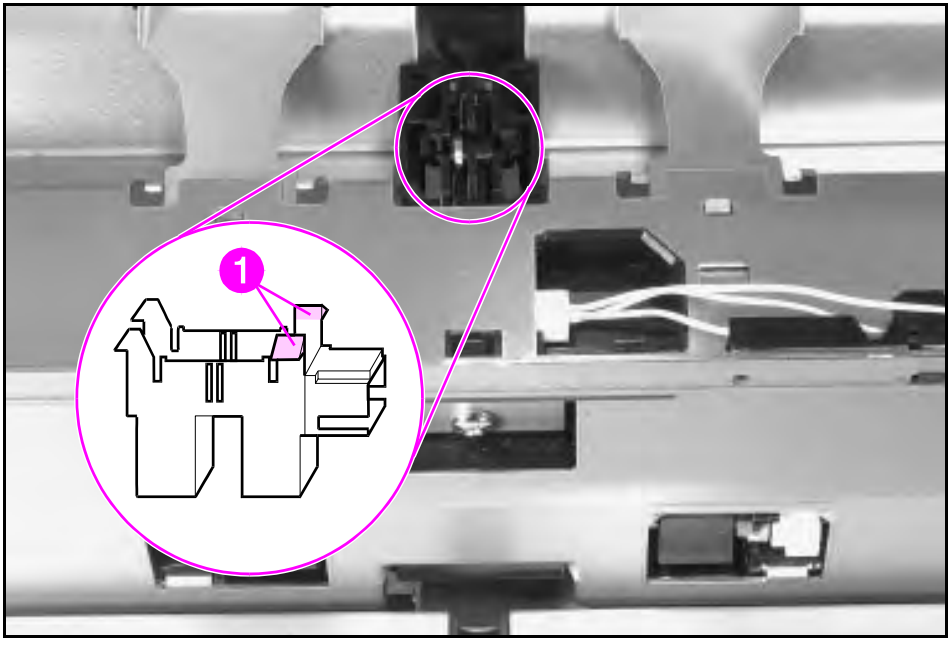
3 Unplug the connector from the sensor.

To Reinstall:

1 Plug in the connector before reinstalling.

2 Hold the sensor flag out of the way, hook the tabs on the left end in first, and snap the right end of the sensor upward into place.

Figure 6-48



Paper Input Unit Sensor (PS2)

Sensor, Registration (PS1)

1 Remove the following components in the order listed:
- Toner Cartridge
- Trays 2 and 3
- Transfer Roller (see Figure 6-51)
- Registration Assembly (see Figure 6-43)
- Front Cover (see Figure 6-5)
- Tray 1 Assembly (see Figure 6-52)
- Right Lower Door Assembly (see Figure 6-14)
- Paper Input Unit (see Figure 6-31)

Note

The sensor retaining tabs are released from above, and the sensor is removed and replaced from inside the Paper Input Unit cavity.

2 Release the retaining tabs (Figure 6-49, callout 1) on the right end of the sensor and rotate the sensor down to free the tabs on the left end of the sensor.

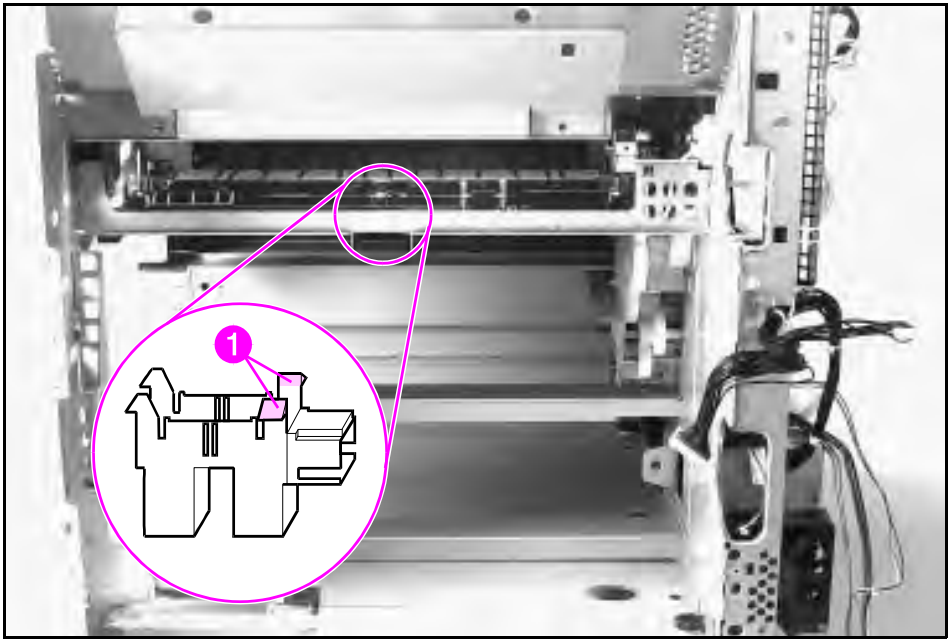
3 Unplug the connector from the sensor.

To Reinstall:

1 Plug in the connector.

2 Hold the sensor flag out of the way, hook the tabs on the left end in first, and snap the right end of the sensor upward into place.

Figure 6-49



Registration Sensor (PS1)

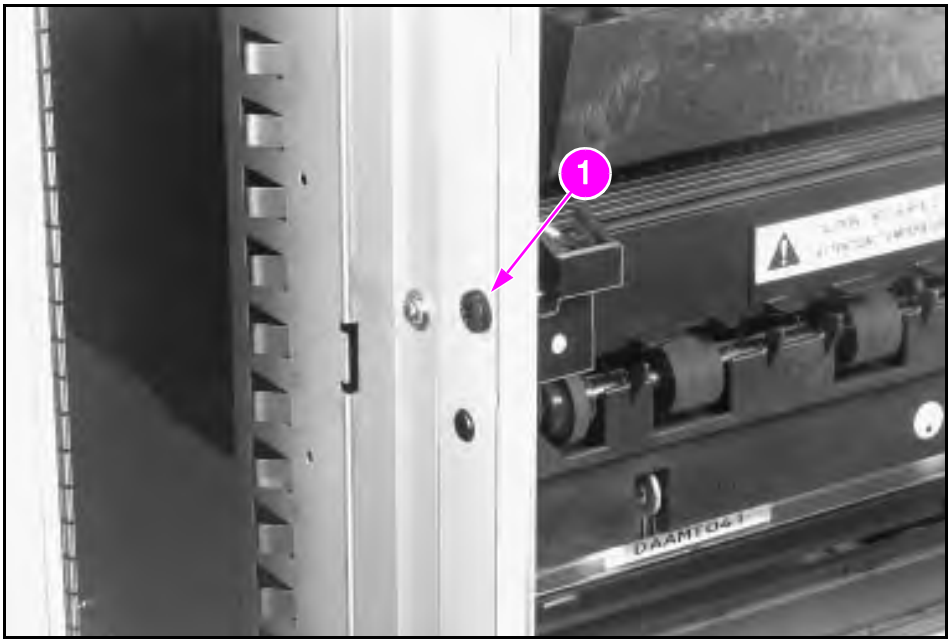
Solenoid Assembly, SL3 (Face-Up)

1 Remove the top cover (see Figure 6-8).
2 Remove the Delivery Unit (see Figure 6-10).
3 Remove (1) self-tapping screw, CH107 (Figure 6-50, callout 1).

Caution Be careful not to damage the plastic arm when removing the assembly.

4 Pull the forward end of the assembly away from the chassis to clear the locating pin, and slide it forward to clear two retaining tabs.

Figure 6-50



Face-Up Solenoid Assembly, SL3

Transfer Roller Assembly

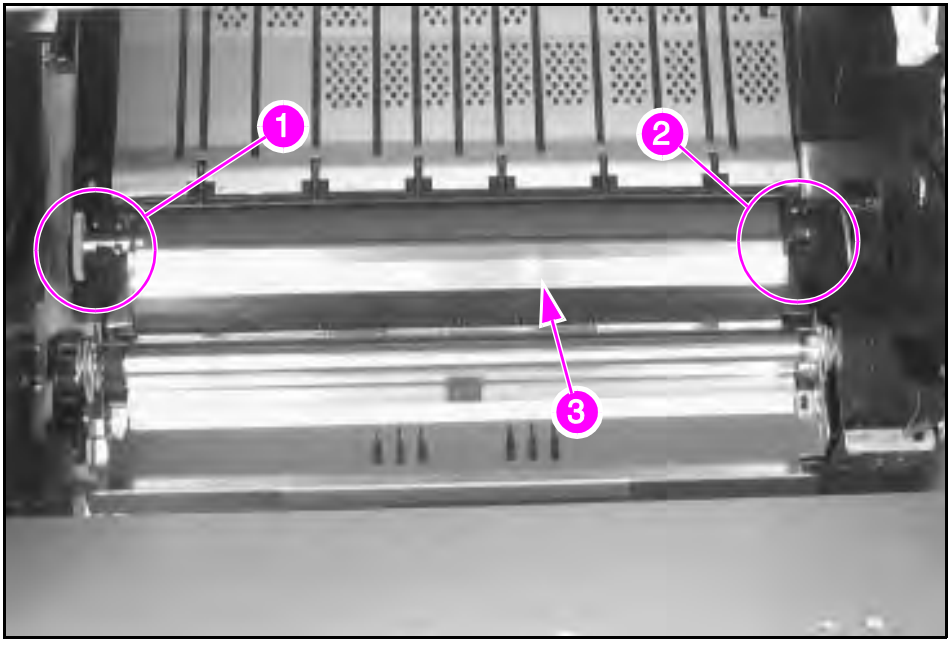
Caution Handle the Transfer Roller from the ends only. Do not touch the surface of the Transfer Roller. Skin oils will affect its electrical characteristics, resulting in poor image transfer.

1. Open the top cover door and remove the toner cartridge.
2. Grasp the gear (Figure 6-51, callout 1) on the left end and carefully lift upward just enough to clear the retainer clip.
3. Slide the Transfer Roller Assembly to the left to release the shaft on the right end (Figure 6-51, callout 2).

To Reinstall:

1. Place the right end of the shaft into its retaining cavity.
2. Hold the Transfer Roller wiper up (Figure 6-51, callout 3) and slide the assembly to the right until the gear on the left end is in position.
3. Carefully press the left end of the shaft into the retainer clip.
4. Press the Transfer Roller wiper down (Figure 6-51, callout 3) until the retaining clips snap into place.

Figure 6-51



Transfer Roller Assembly

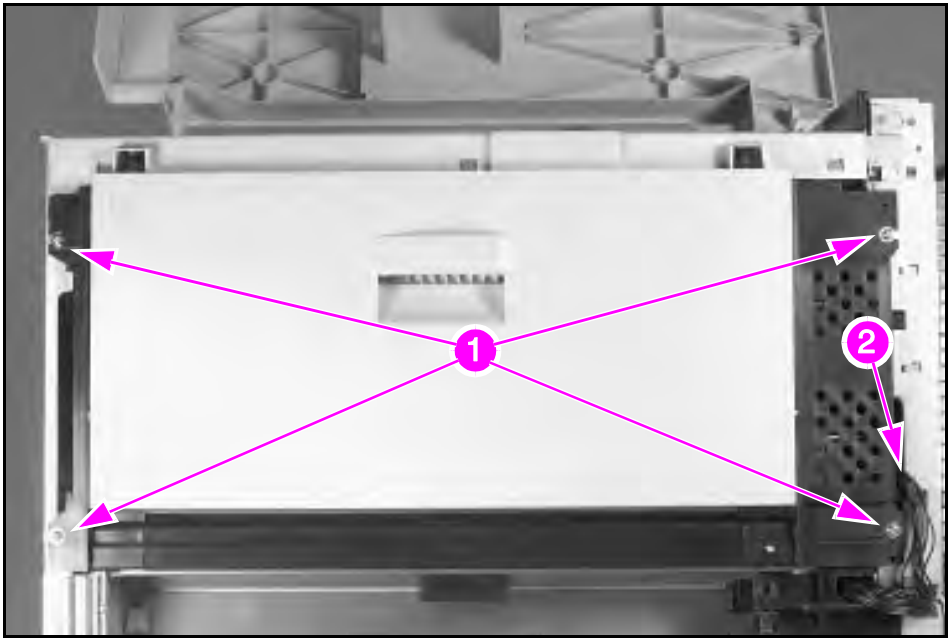
Tray 1 Assembly

1. Remove the front cover (see Figure 6-5) and the back cover (see Figure 6-4).
2. Open the top cover and remove the toner cartridge.
3. Open the right lower door.
4. Remove (4) screws, CH102 (Figure 6-52, callout 1).
5. Carefully pull the assembly out from the printer and unplug the connector inside the right end (Figure 6-52, callout 2).
6. Continue sliding the assembly out of the printer chassis.

To Reinstall:

Make sure that the alignment pins and plastic gears are properly aligned.

Figure 6-52



Tray 1 Assembly

Tray 2/3 Assemblies

Note

The paper trays are mechanically aligned to the printer chassis at the factory. If you are replacing Tray 2 or Tray 3 with a tray other than the original factory installed unit, you may have to adjust the new tray. For details, refer to the Tray 2 and 3 Adjustment Procedure in Chapter 4.

1. Open the tray and pull it out to the stop.
2. Carefully lift up on the outer end to release the tray stop mechanism at the right rear while continuing to pull the tray free of the chassis.

To Reinstall:

1. Align the left rear corner of the tray and the locating track at the lower rear center of the tray with their respective guides, and insert the tray no more than two inches into the chassis.
2. Carefully lift up on the outer end of the tray while pulling the tray stop mechanism, located at the right rear of the tray opening, out and over the tray roller and guide assembly.
3. Carefully slide the tray into the printer until it latches into place.

Tray 4 (2000-Sheet Input Unit)

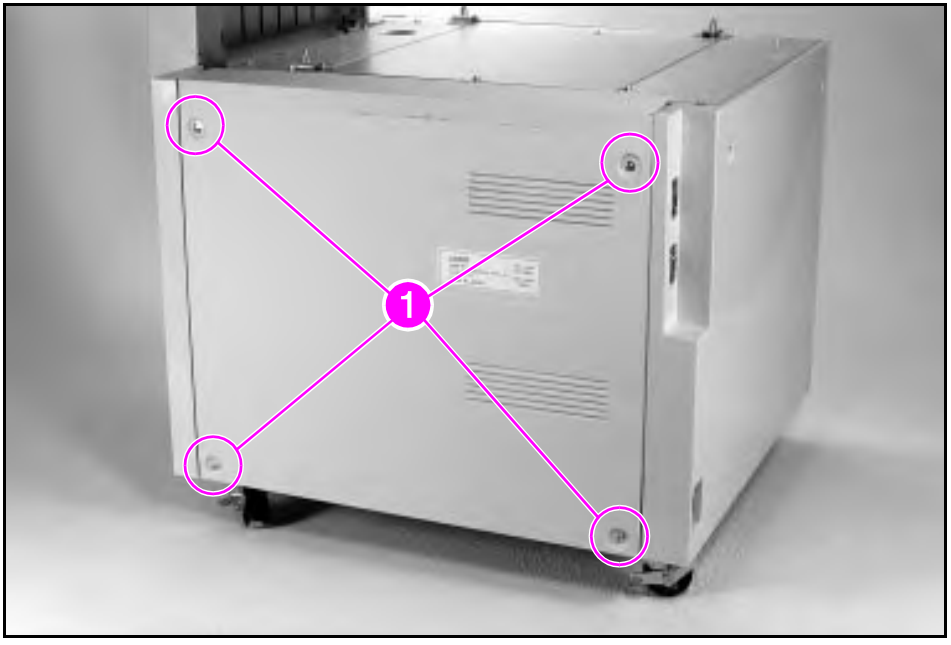
Back Cover

1 Remove (4) screws, CH108 (Figure 6-53, callout 1), and pull cover back from the chassis.

To Reinstall:

1 Make sure the tab on the left lower corner is inserted in its alignment slot.
2 Insert the star lockwasher under the lower right screw.

Figure 6-53



Tray 4, Back Cover

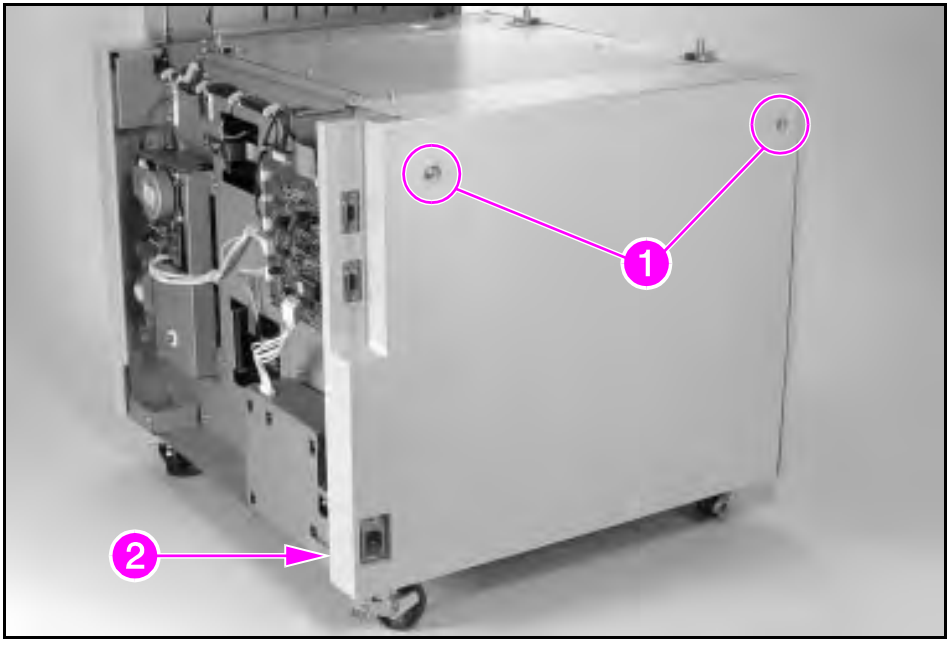
Left Cover

1. Remove (2) screws, CH108 (Figure 6-54, callout 1).
2. Pull out on the top of the cover and lift up on the right side of the cover to clear the retaining tabs along the bottom edge.
3. Pull out on cover at the lower left corner (Figure 6-54, callout 2) to release the plastic retainer tab and lift the cover off.

To Reinstall:

1. Place the left side of the cover in place first, and tilt the right side down and inward to place the lower retaining tabs over the chassis rail.

Figure 6-54



Tray 4, Left Cover

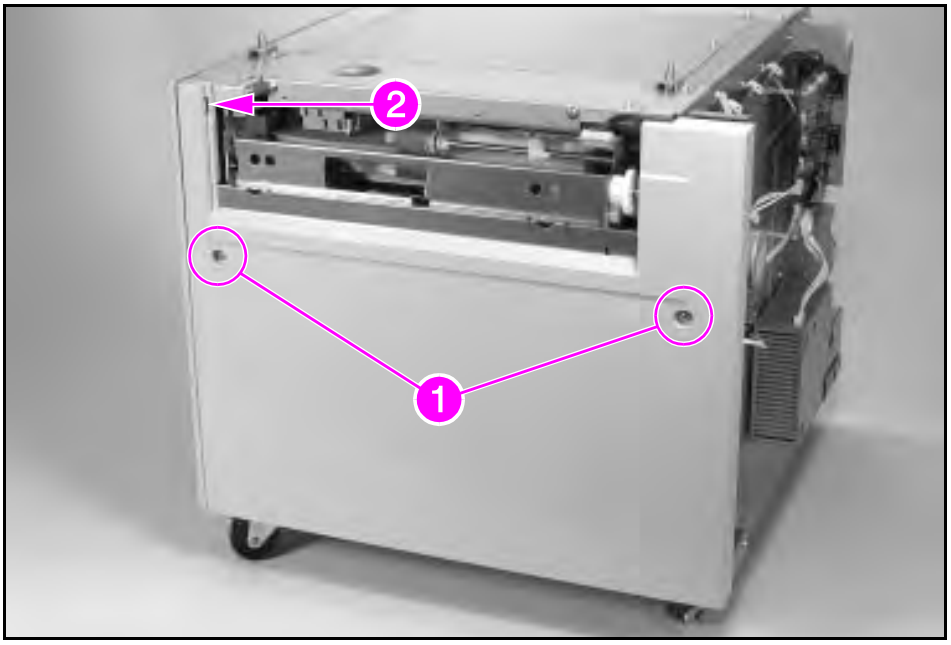
Right Cover

1. Remove the Transfer Assembly (see Figure 6-64).
2. Remove (2) screws, CH109 (Figure 6-55, callout 1).
3. Release plastic retaining tab (Figure 6-55, callout 2).
4. Carefully pull out on the top of the cover while lifting it upward to clear the retaining tabs along the inside bottom of the cover.

To Reinstall:

1. Make sure that the retaining tabs along the bottom of the cover are placed over the chassis rails.
2. Replace the Transfer Door Assembly.

Figure 6-55

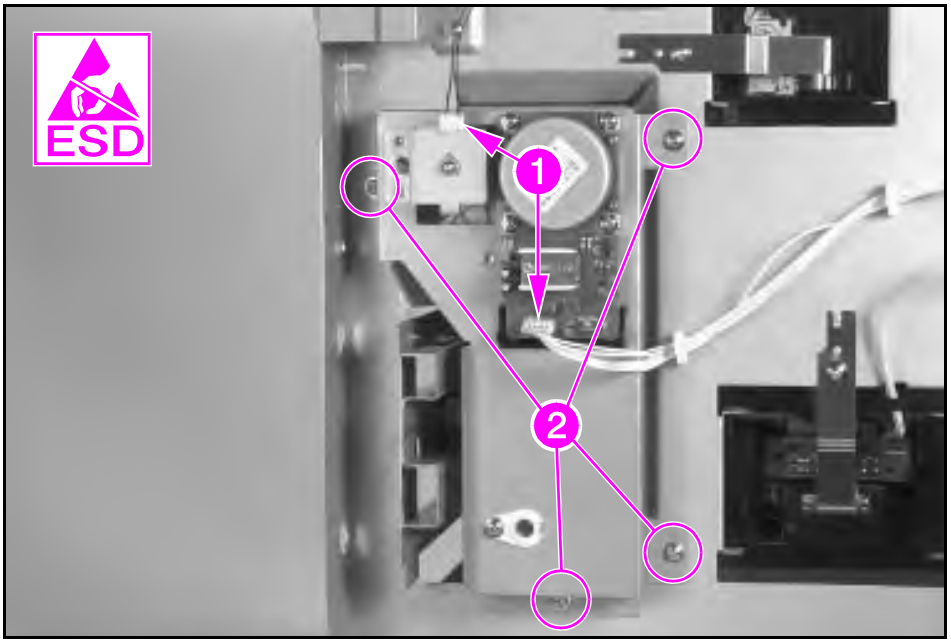


Tray 4, Right Cover

Main Drive Assembly

1 Remove the Transfer Assembly (see Figure 6-64).
2 Remove the back cover (see Figure 6-53) and the right cover (see Figure 6-55).
3 Unplug (2) connectors (Figure 6-56, callout 1).
4 Remove (4) screws, CH108 (Figure 6-56, callout 2) and pull the assembly straight out of the chassis.

Figure 6-56



Tray 4, Main Drive Assembly

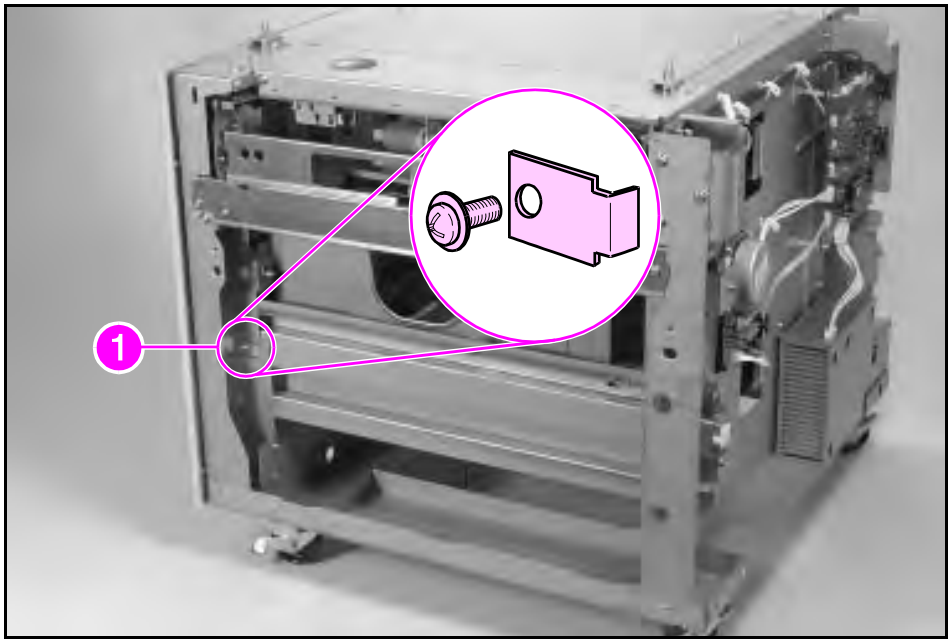
Paper Tray

1 Remove all unused paper from the tray.
2 Remove the Transfer Assembly (see Figure 6-64).
3 Remove the left cover (see Figure 6-54) and the right cover (see Figure 6-55).
4 Remove (1) screw, CH108 (Figure 6-57, callout 1) and the metal retaining tab from each side of the chassis.

Caution Support the rear of the tray when removing it.

5 Slide the tray straight out of the chassis.

Figure 6-57



Tray 4, Paper Tray

Note If the print starts too close to the edge of the paper, see "Tray 4 Adjustment Procedure" in Chapter 4 to adjust the paper.

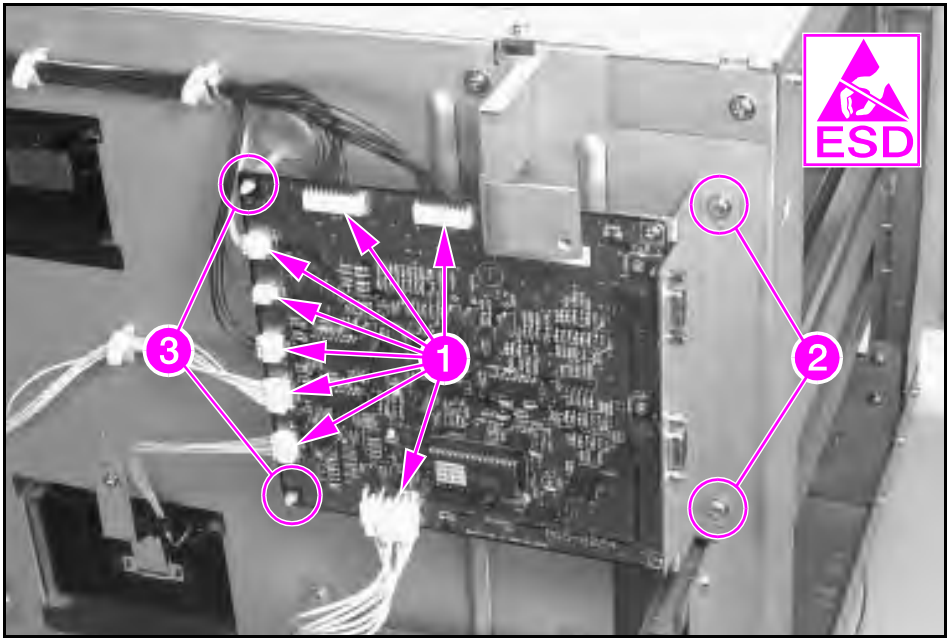
PCA, Controller

1. Remove the back cover (see Figure 6-53) and the left cover (see Figure 6-54).
2. Unplug (8) connectors from the PCA (Figure 6-58, callout 1).
3. Remove (2) screws, CH108 (Figure 6-58, callout 2).
4. Release (2) plastic retaining posts (Figure 6-58, callout 3), and pull the PCA free of the chassis.

To Reinstall:

Make sure that the PCA is firmly locked onto the plastic retaining posts.

Figure 6-58



Tray 4, PCA Controller

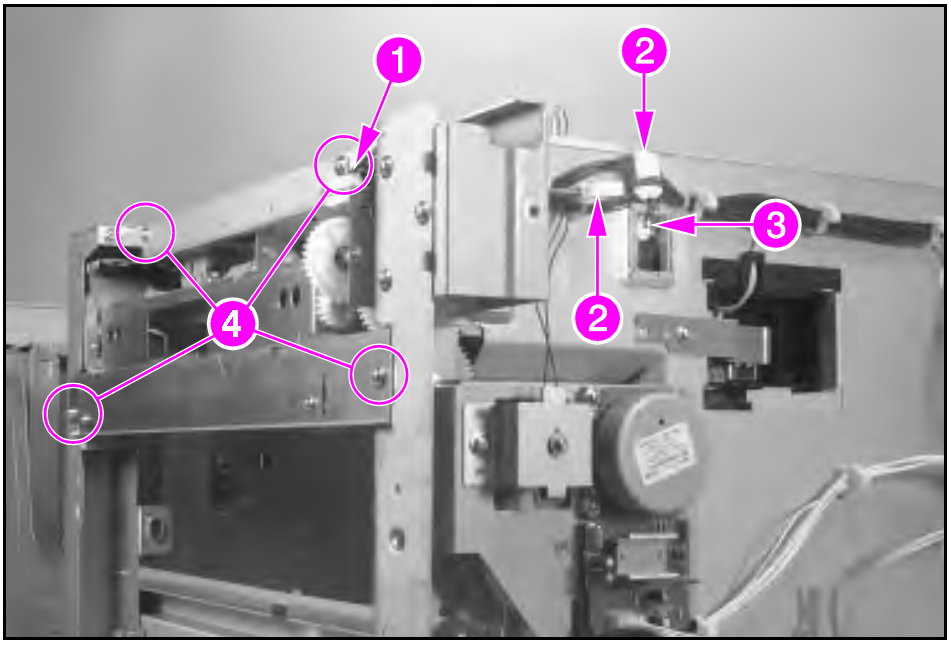
Pickup Assembly

1. Open the paper tray to the stops.
2. Remove the Transfer Assembly (see Figure 6-64).
3. Remove the right cover (see Figure 6-55) and the Back Cover (see Figure 6-53).
4. Unplug (1) connector (Figure 6-59, callout 1) from the front of the Pickup Assembly.
5. Unplug (2) in-line connectors (Figure 6-59, callout 2).
6. Unplug (1) connector (Figure 6-59, callout 3) from the side of the assembly.
7. Free the cables from their retaining clips.
8. Remove (4) screws, CH108 (Figure 6-59, callout 4).
9. Slide the assembly straight out of the chassis.

To Reinstall:

Make sure that the side connector (Figure 6-59, callout 3) is replaced.

Figure 6-59



Tray 4, Pickup Assembly

Pickup Assembly Photosensors

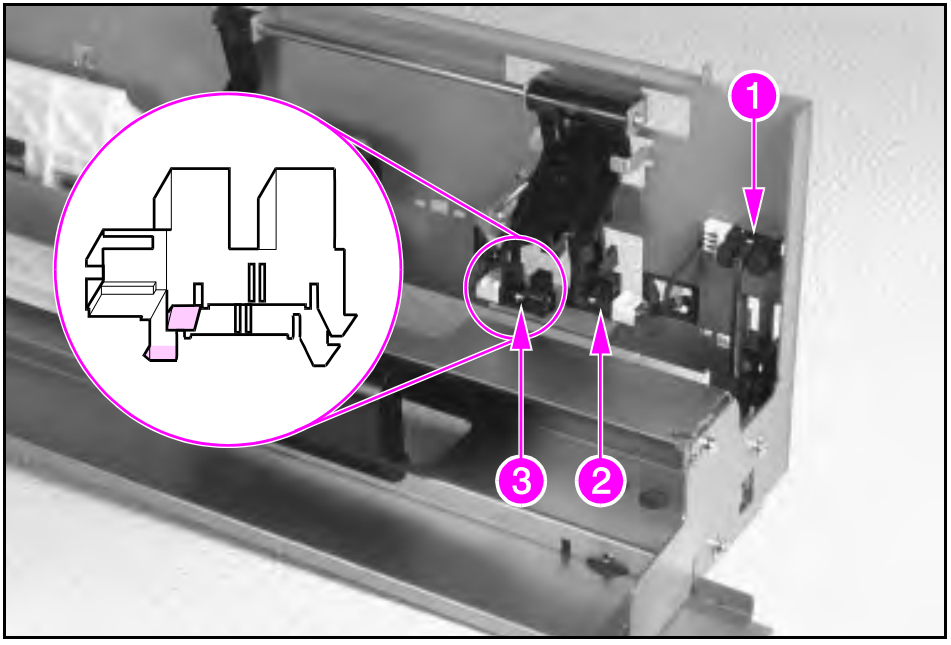
There are three photosensors on the Pickup Assembly:

- one to sense that the Transfer Assembly is closed (Figure 6-60, callout 1).
- one to sense that the tray has raised the paper to the proper height (Figure 6-60, callout 2).
- one to sense that the tray is empty (Figure 6-60, callout 3).

To remove a photosensor:

1. Remove the Pickup Assembly (see Figure 6-59).
2. Unplug the connector from the sensor.
3. Release the side-oriented retaining tabs and rotate the sensor to free the end-oriented retaining tabs on the opposite end.

Figure 6-60



Tray 4, Pickup Assembly Photosensors

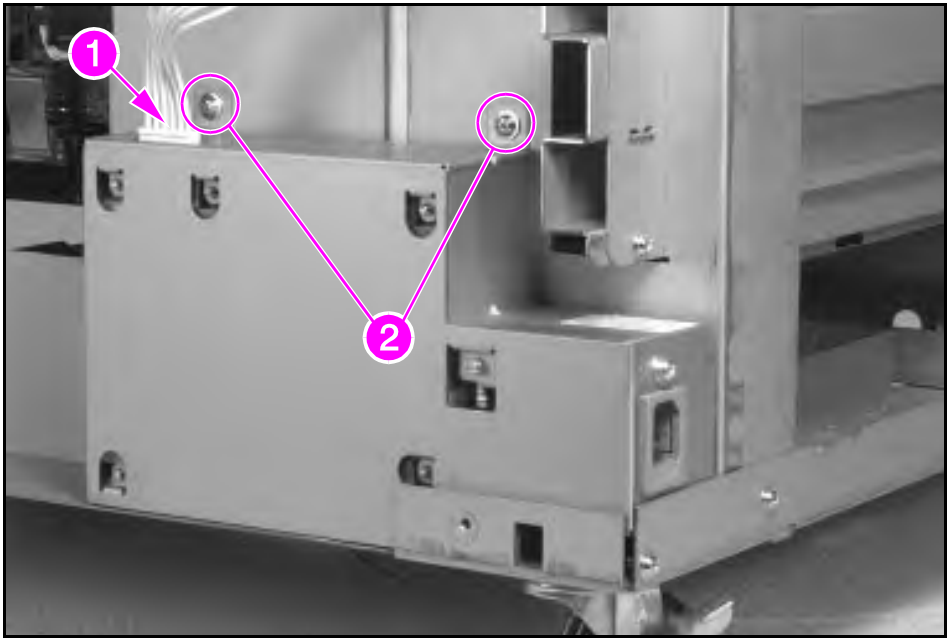
Power Supply

1 Remove the back cover (see Figure 6-53) and the left cover (see Figure 6-54).
2 Unplug the connector from the Power Supply (Figure 6-61, callout 1).
3 Remove (2) screws, CH108 (Figure 6-61, callout 2).
4 Lift the Power Supply up to clear the locating tabs underneath, and slide it to the left to free it from the chassis.

To Reinstall:

Make sure that the locating tabs are properly aligned.

Figure 6-61



Tray 4, Power Supply

Rollers: Pickup, Feed, and Separation

There are three rollers in this assembly. The upper forward roller is the Pickup Roller, the upper rear roller is the Feed Roller, and the lower roller is the Separation Roller. The Feed and Separation Rollers are interchangeable with each other and between Trays 2 and 3 and 4. The Pickup Roller is interchangeable with the Pickup Rollers in Trays 2 and 3.

- Pickup Roller: Figure 6-62, callout 1
- Feed Roller: Figure 6-62, callout 2
- Separation Roller: Figure 6-62, callout 3

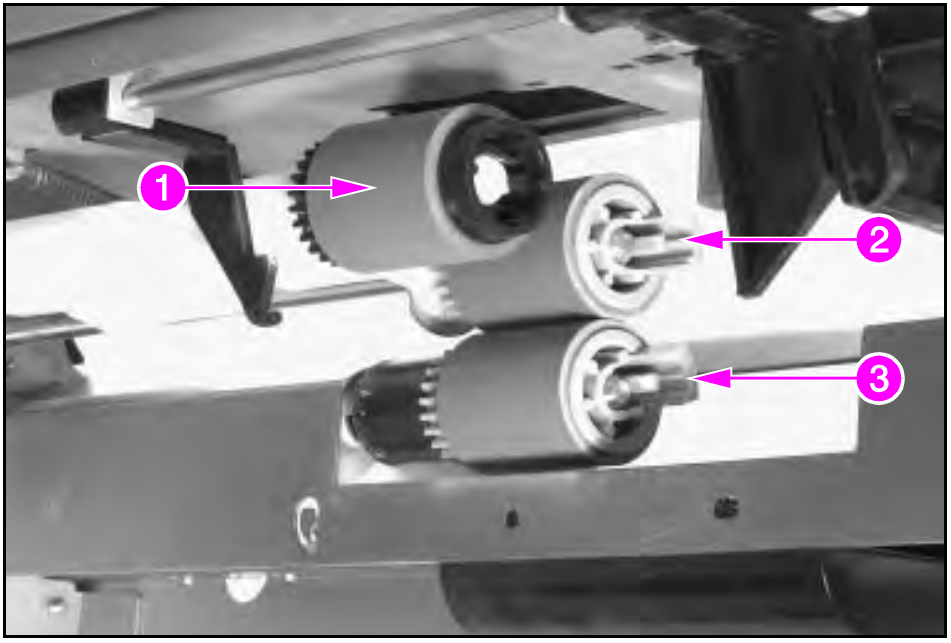
1 Remove the paper tray (see Figure 6-57).

Note

The Feed and Separation Rollers have protruding retaining tabs, and the Pickup Roller has recessed retaining tabs.

2 From inside the tray cavity, remove the rollers by pinching the retainer tabs together and sliding the roller off the shaft.

Figure 6-62



Tray 4 Rollers: Pickup, Feed, and Separation

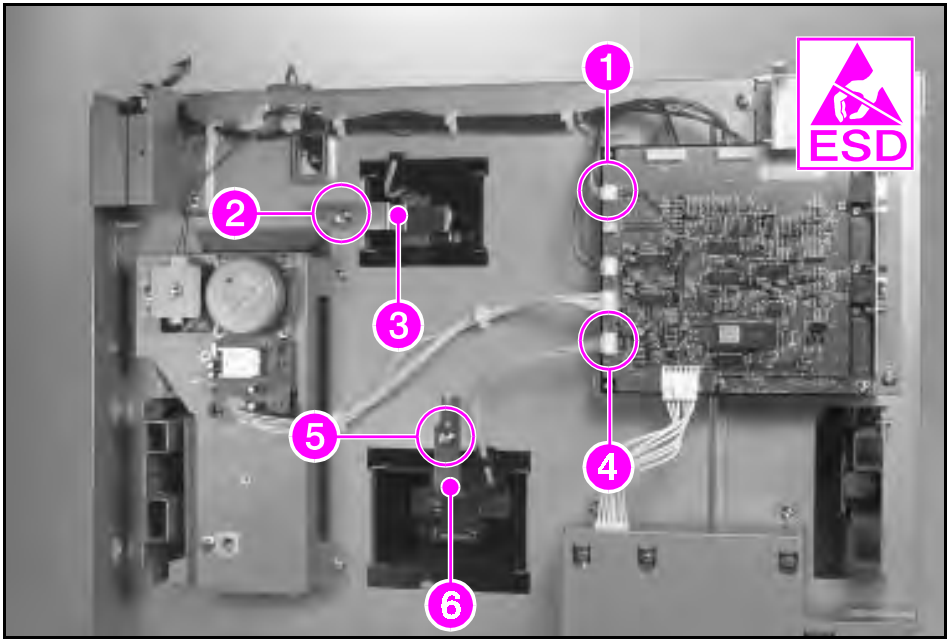
Switch Assembly, Paper Quantity

1. Remove the back cover (see Figure 6-53).
2. Open the paper tray and pull it out to the stops.
3. Unplug the connector (Figure 6-63, callout 1) from the Controller PCA and free the cable.
4. Remove (1) screw, CH108 (Figure 6-63, callout 2), and remove the metal retaining spring (Figure 6-63, callout 3).
5. Slide the switch assembly backward out of its cavity.

Switch Assembly, Paper Size

1. Remove the back cover (see Figure 6-53).
2. Open the paper tray and pull it out to the stops.
3. Unplug the connector (Figure 6-63, callout 4) from the Controller PCA.
4. Remove (1) screw, CH108 (Figure 6-63, callout 5), and remove the metal retaining spring (Figure 6-63, callout 6).
5. Slide the switch assembly backward out of its cavity.

Figure 6-63



Tray 4, Switch Assemblies

Switch Assembly, Lifter Sensing

1. Lift the printer clear of the HCI and place it on a smooth, sturdy surface.
2. Remove the top cover (2 screws).
3. Remove the back cover (4 screws, Figure 8-7, reference 5).
4. Disconnect the outside cables (connector with two cables) to release Microswitch Assembly from the back top of the frame.
5. Remove the screw that holds the Microswitch mounting metallic bar to the frame.
6. Take out the Microswitch Assembly (switch and metallic bar) by sliding the bar towads the front of the assembly (Figure 8-7, reference 66).
7. Installation of the Microswitch Assembly is the reverse order.

Transfer Assembly

1. Open the Transfer Assembly and rotate the plastic cams (Figure 6-64, callout 1) to the “open” position.
2. Unplug the connector (Figure 6-64, callout 2).

WARNING! Do not release the plastic cams while the Transfer Assembly is removed from the chassis. The springs are very strong and may cause injury.

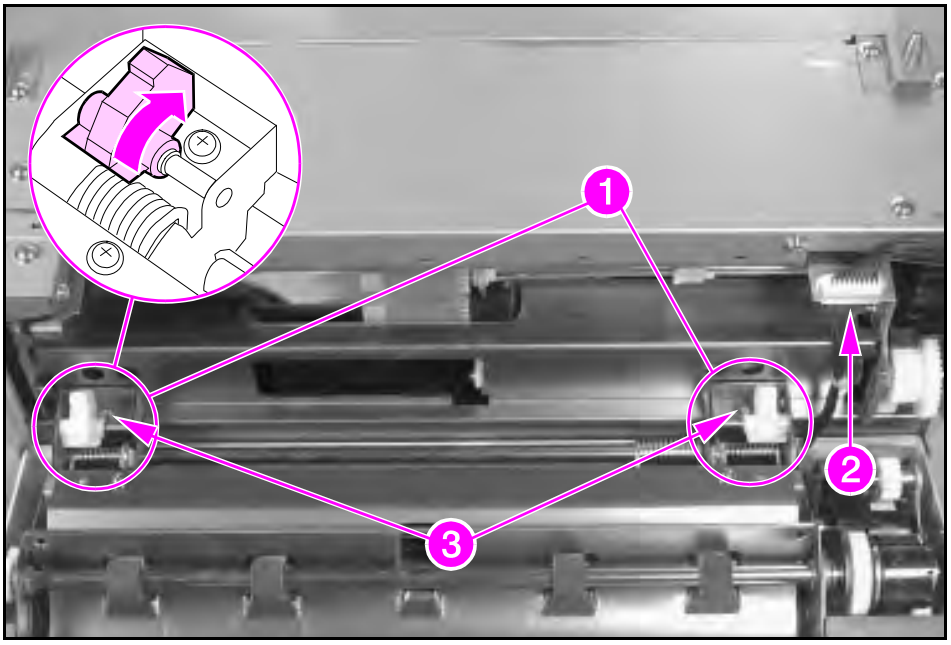
3. Remove (2) screws, CH110 (Figure 6-64, callout 3), and lift the assembly straight up to clear the metal locating tabs.

To Reinstall:

WARNING! Release the plastic cams **only** after tightening the screws.

1. Make sure that the metal locating tabs are in place before tightening the screws.
2. Release the plastic cams after tightening the screws.

Figure 6-64



Tray 4, Transfer Assembly

Multi-Bin Mailbox/Mailbox With Stapler

Covers

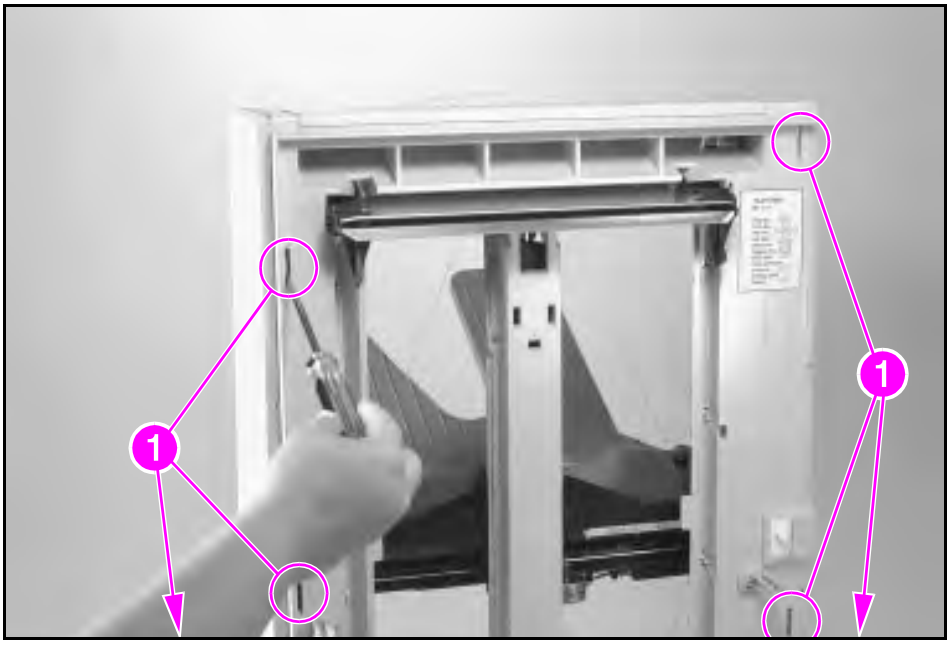
The procedure for removing the left and right covers is the same.

1 Using a small flat-blade screwdriver, release (3) retaining tabs (Figure 6-65, callout 1) along the rear edge of the cover and rotate the cover clear of the frame.

To Reinstall:

Make sure that the retaining tabs along the front edge are in place and snap the rear edge of the cover into position.

Figure 6-65



Multi-Bin Mailbox/Mailbox with Stapler Covers

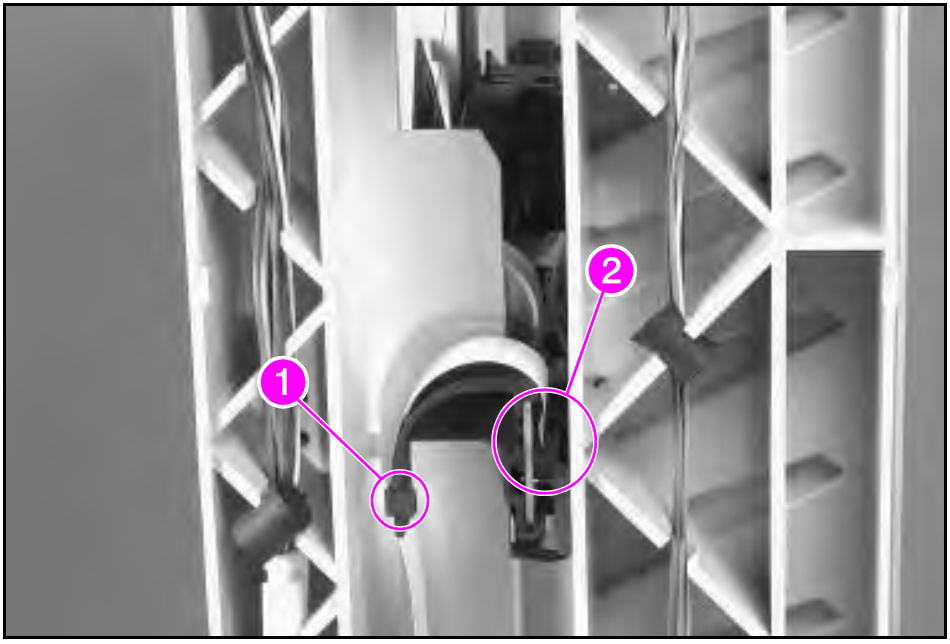
Delivery Head Assembly

1 Remove the left cover (see Figure 6-65).
2 Remove all paper bins and the blind cover (see Figure 6-86) or the stapling unit (see Figure 6-91).
3 Release the top of the Metallic Tape (see Figure 6-79).
4 Unlock the cable clip (Figure 6-66, callout 1) and unplug the ribbon cable (Figure 6-66, callout 2) from the left end of the Delivery Head Assembly.
5 Raise the Delivery Head Mechanism to the top of the frame.
6 Support the Delivery Head Mechanism and remove (4) screws, CH111 (Figure 6-67, callout 3).
7 Rotate the right end of the assembly forward while guiding the left end through its access opening.
8 Release the Anti-Curl Strings from the pulleys on the back of the assembly (Figure 6-68, callout 4) by removing the mounting pin form the center.

To Reinstall:

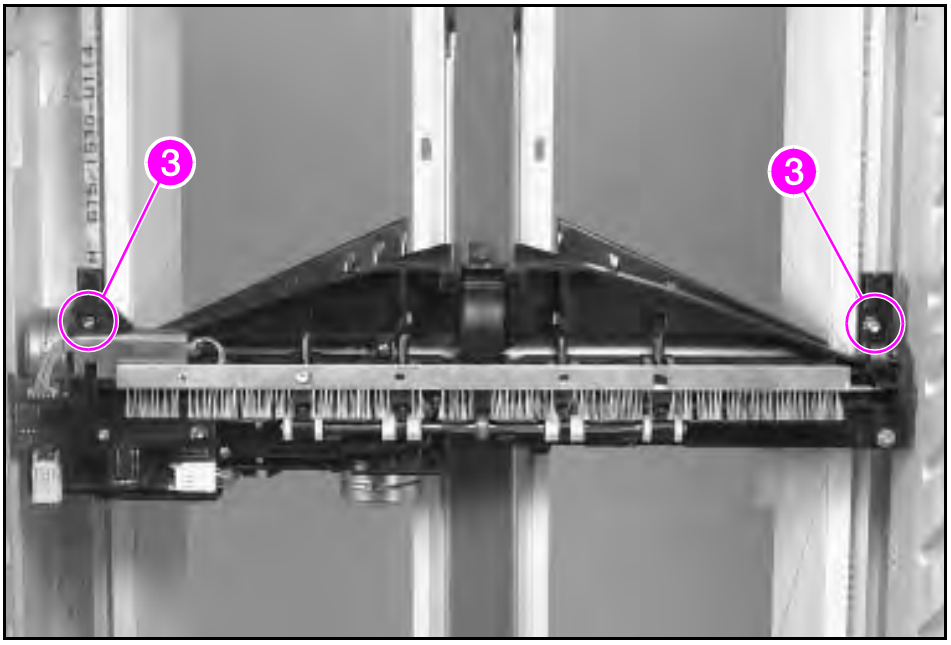
1 Replace the Anti-Curl Strings into the pulleys on the back of the assembly. (You may need to release the Anti-Curl String Springs at the bottom of the frame to have enough slack.)
2 Carefully replace the ribbon cable into its connector.
3 Insert the left end of the assembly through its access opening and position the assembly onto its elevator mounts. Make sure that the locating pins are in place.
4 Replace the (2) screws, CH111.
5 Reattach the Anti-Curl String Springs at the bottom of the frame.

Figure 6-66



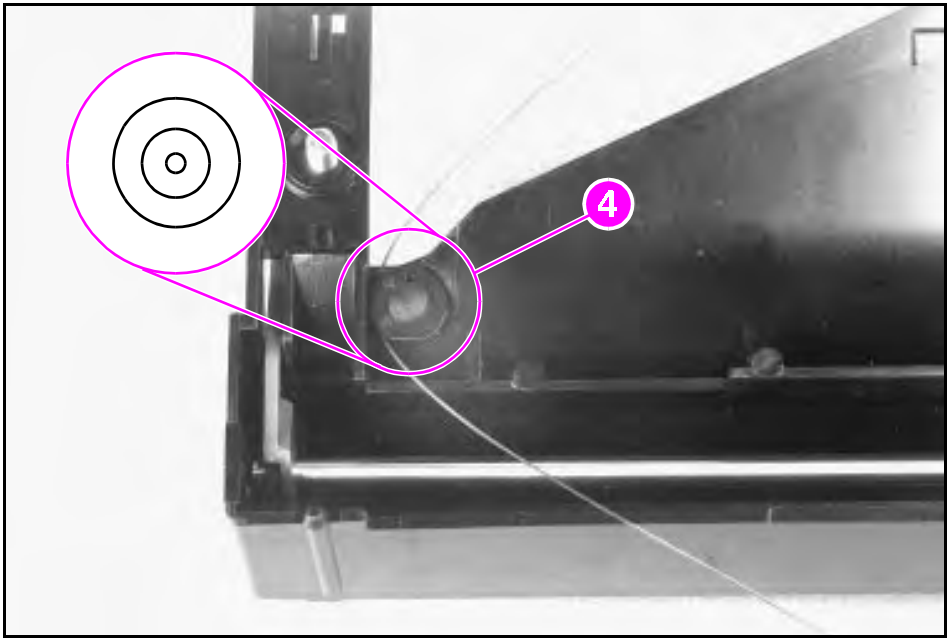
Multi-Bin Mailbox/Mailbox with Stapler, Delivery Head Ribbon Cable

Figure 6-67



Multi-Bin Mailbox/Mailbox with Stapler, Delivery Head Mounting Screws

Figure 6-68



Multi-Bin Mailbox/Mailbox with Stapler, Delivery Head Pulley Detail

Flipper Assembly

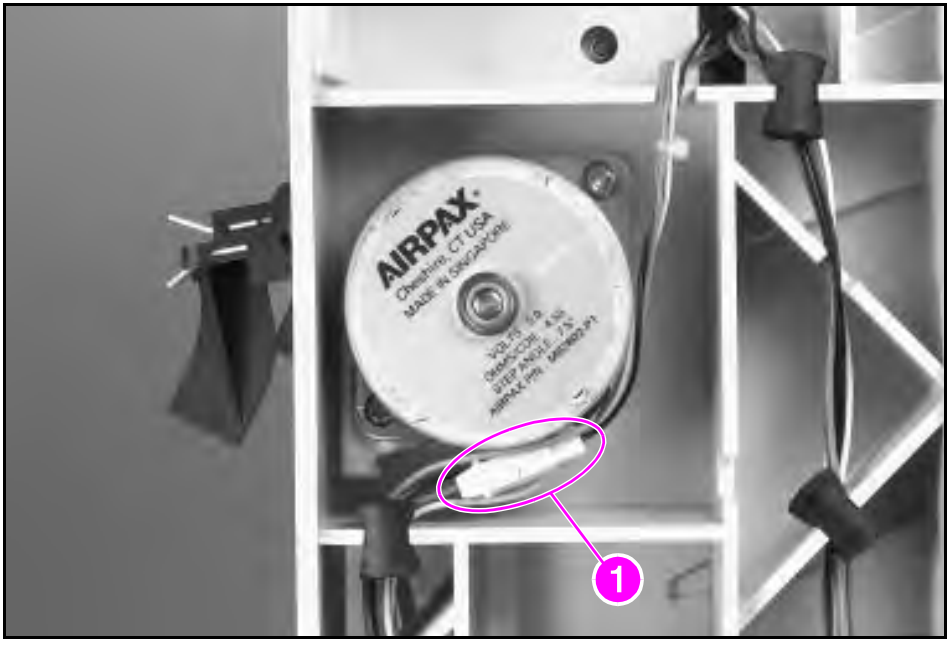
1. Remove all paper bins and the blind cover (see Figure 6-86).
2. Remove the Left and Right Covers (see Figure 6-65).
3. Remove the Delivery Head Position Motor (see Figure 6-82).
4. Remove the Jam Access Door (see Figures 6-74 through 6-76).
5. Remove the (2) inside screws closest to the front of the unit, CH112 (Figure 6-70, callout 2).
6. Unplug the ground wire from the Flipper Roller Motor (Figure 6-71, callout 3).
7. Tilt the right end of the assembly a few inches out of the frame, unplug the cable (see Figure 6-69), and rotate the assembly free while feeding the motor cable out through the access opening on the left side.

To Reinstall:

Caution

Do not over tighten the screws (Figure 6-70, callout 2), when replacing the Flipper Assembly. The nuts in the Flipper Assembly will rotate in their retaining slots.

Figure 6-69

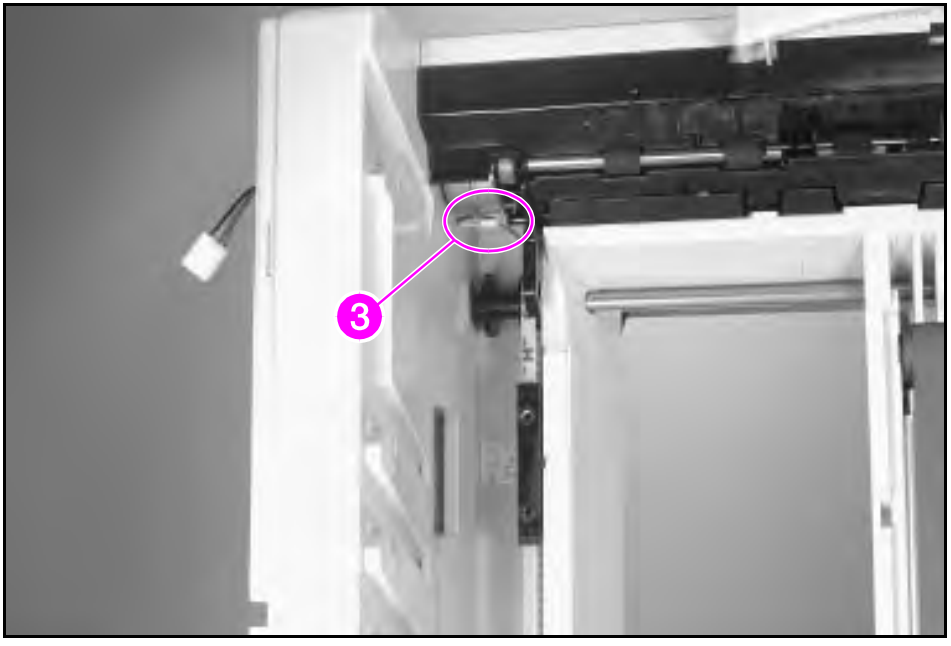


Multi-Bin Mailbox/Mailbox with Stapler, Flipper Assembly Connector

Figure 6-70

Multi-Bin Mailbox/Mailbox with Stapler, Flipper Assembly Mounting Screws

Figure 6-71

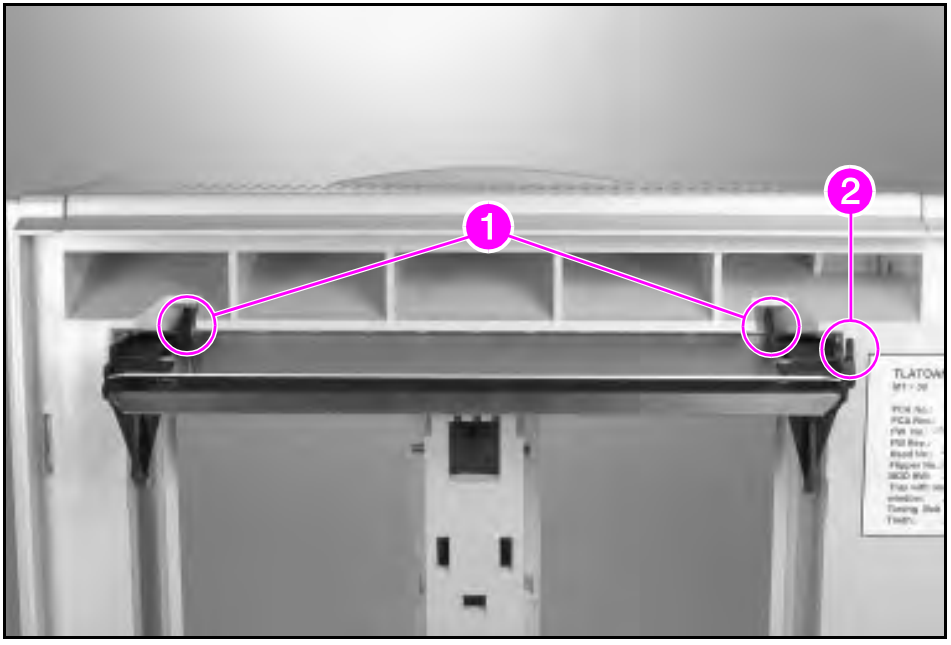


Multi-Bin Mailbox/Mailbox with Stapler, Flipper Assembly Ground Wire

Input Paper Guide

1. Remove the paper bins and the blind cover (see Figure 6-86).
2. Open the Jam Access Door and disconnect the ground wire from the bottom of the Flipper Roller Motor (Figure 6-71, callout 3).
3. From the rear of the unit, release the Paper Guide retaining tabs (Figure 6-72, callout 1).
4. Carefully pull the paper guide free of the frame while routing the ground wire through the access hole (Figure 6-72, callout 2).

Figure 6-72

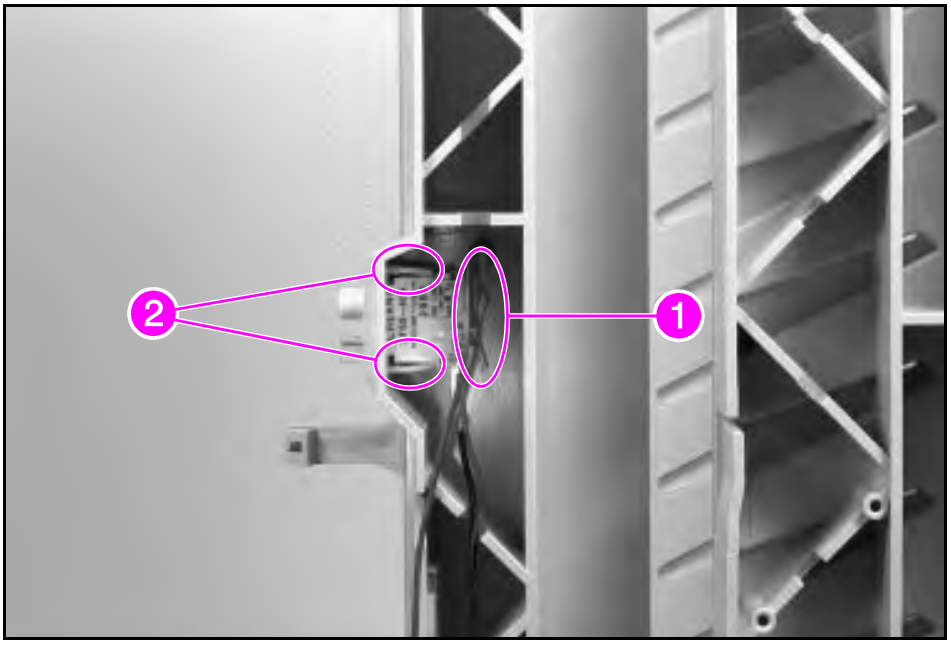


Multi-Bin Mailbox/Mailbox with Stapler, Input Paper Guide

Interlock Switch

1. Remove the left cover (see Figure 6-65).
2. Disconnect (2) wires from the Interlock Switch (Figure 6-73, callout 1).
3. Press the retainer tabs together (Figure 6-73, callout 2) to release the switch and remove it from the rear of the unit.

Figure 6-73



Multi-Bin Mailbox/Mailbox with Stapler, Interlock Switch

Jam Access Door Assembly

1 Remove the left and right covers (see Figure 6-65).
2 Remove the Delivery Head Position Motor (see Figure 6-82).
3 Remove all paper bins and the blind cover (see Figure 6-86).
4 Release the upper end of the Metallic Tape (see Figure 6-79).
5 Release (2) retaining springs (Figure 6-74, callout 1).
6 From the front of the unit, remove (1) e-clip from the right end of the shaft (Figure 6-75, callout 2).

Caution

Use caution when removing the e-clip because the clip might slip and shoot towards you or another person.

Note

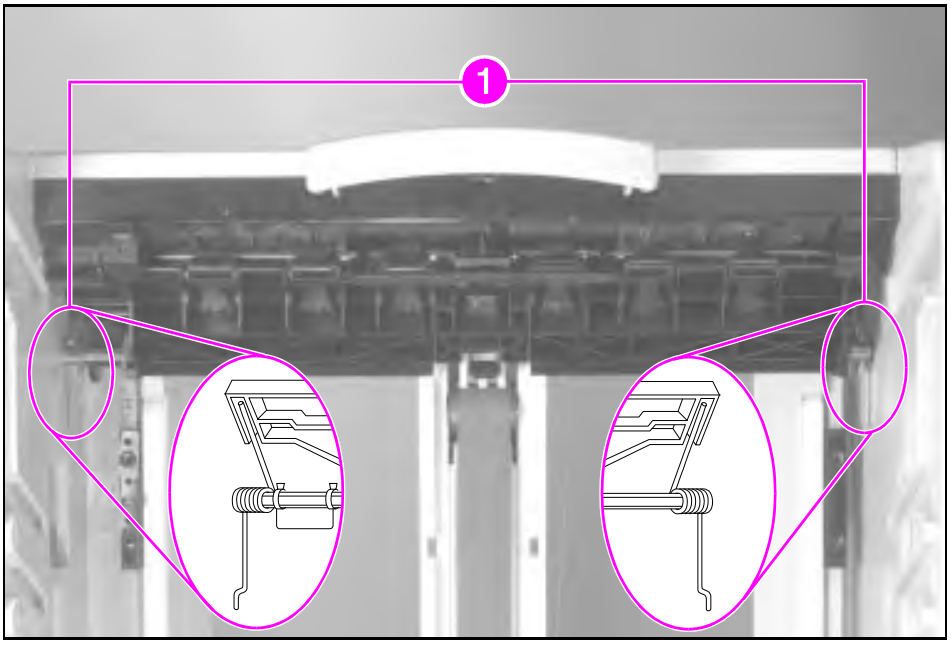
Before removing the Jam Access Door six-sided shaft, note the position of the plastic retainer that holds the metallic tape located at the center of the door. It must be replaced on the shaft in the same position for proper paper movement.

7 From the front of the unit, support the door assembly while sliding the shaft to the left until it is clear of the frame. The retaining springs and tape retainer will fall free.
8 Release the upper ends of the Paper Guide Strings (Figure 6-76, callout 3) from the assembly.

To Reinstall:

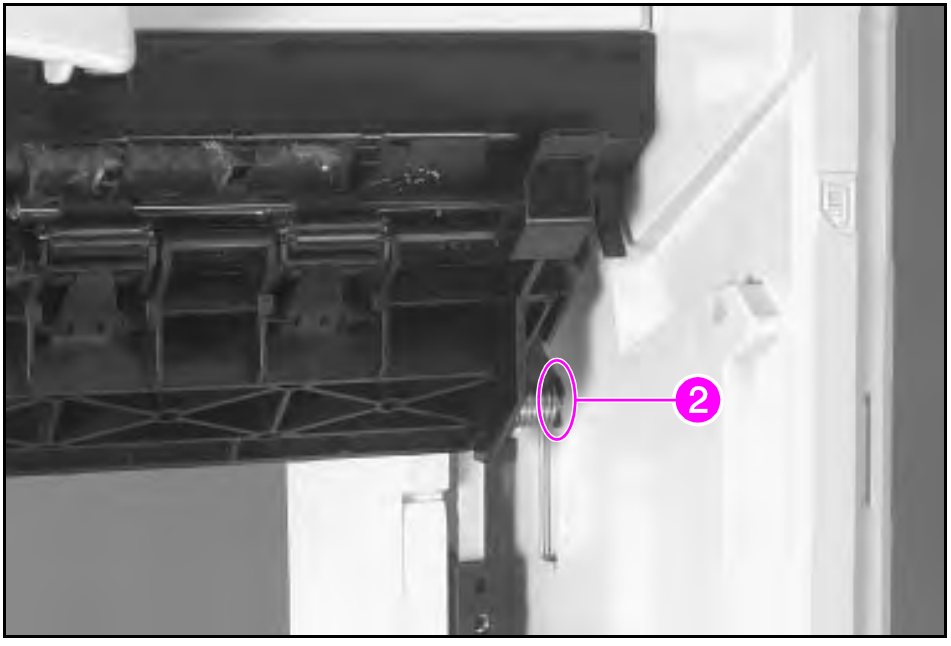
1 Attach the upper ends of the Paper Guide Strings to the door assembly before installing it into the frame.
2 Make sure that the retaining springs and the tape retainer are properly positioned as you insert the shaft into the frame.
3 Make sure that the retaining springs, e-clip, and copper grounding plate are properly replaced on the shaft in the same position in which they were removed.

Figure 6-74



Multi-Bin Mailbox/Mailbox with Stapler, Jam Access Door Springs

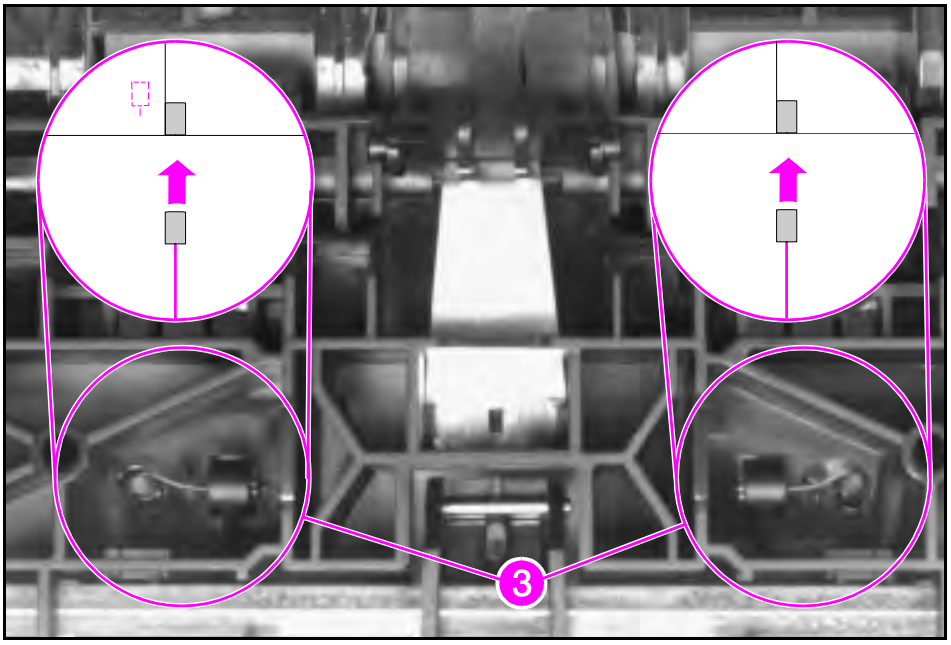
Figure 6-75



Multi-Bin Mailbox/Mailbox with Stapler, Jam Access Door E-Clip

Note Figure 6-76 with callout 3 is on the following page.

Figure 6-76



Multi-Bin Mailbox/Mailbox with Stapler, Jam Access Door String Connection

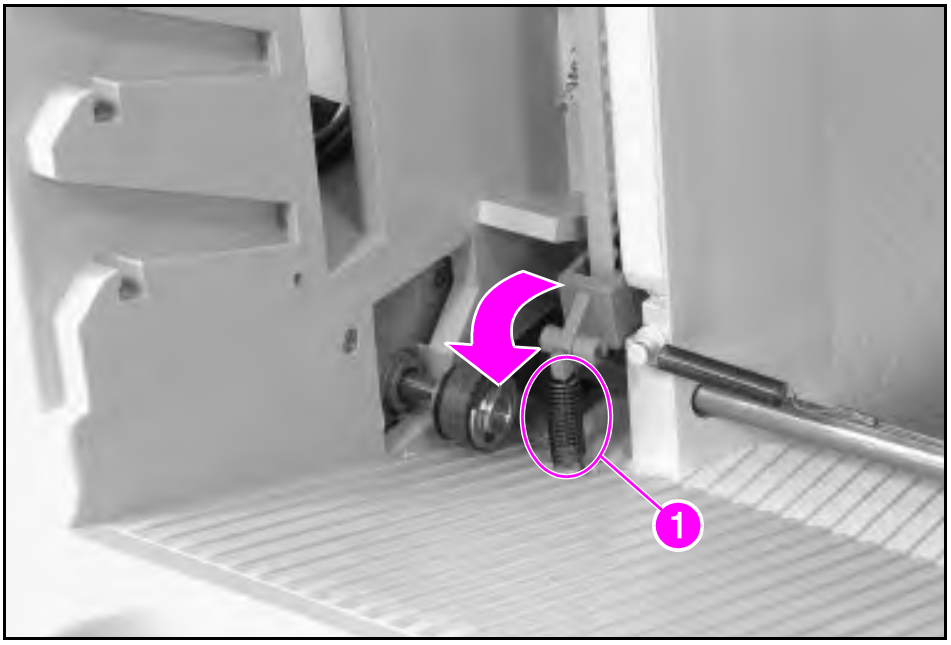
Lower Elevator Pulley Assemblies

1. Remove all paper bins and the blind cover (see Figure 6-86).
2. From the front of the unit, disconnect (2) tension springs (Figure 6-77, callout 1).
3. From the back of the unit, release (2) lower pulley assemblies by pushing down on the assembly, and then pushing it forward (Figure 6-78, callout 2). Note that the protrusion on the side of the pulley housing is positioned toward the outside of the frame.
4. Release the elevator belt from the pulley assembly by pushing downward on the pulley until the pulley shaft falls free. Note that the flattened end of the pulley shaft is positioned toward the outside of the frame.

To Reinstall:

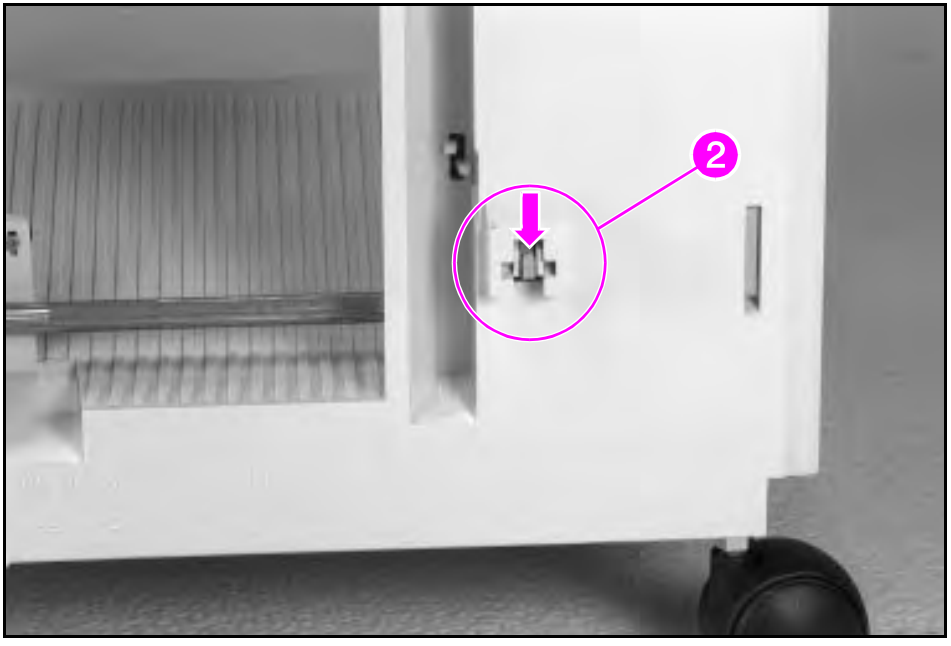
1. Make sure that the locating tabs in the pulley halves fit exactly into their mating notches. When properly assembled, the pulley halves will not rotate relative to each other.
2. Make sure that the pulley housings are positioned with the shaft protrusion toward the outside of the frame.
3. Make sure to reconnect the lower tension springs.

Figure 6-77



Multi-Bin Mailbox/Mailbox with Stapler, Elevator Pulley Tension Spring

Figure 6-78



Multi-Bin Mailbox/Mailbox with Stapler, Pulley Housing Release

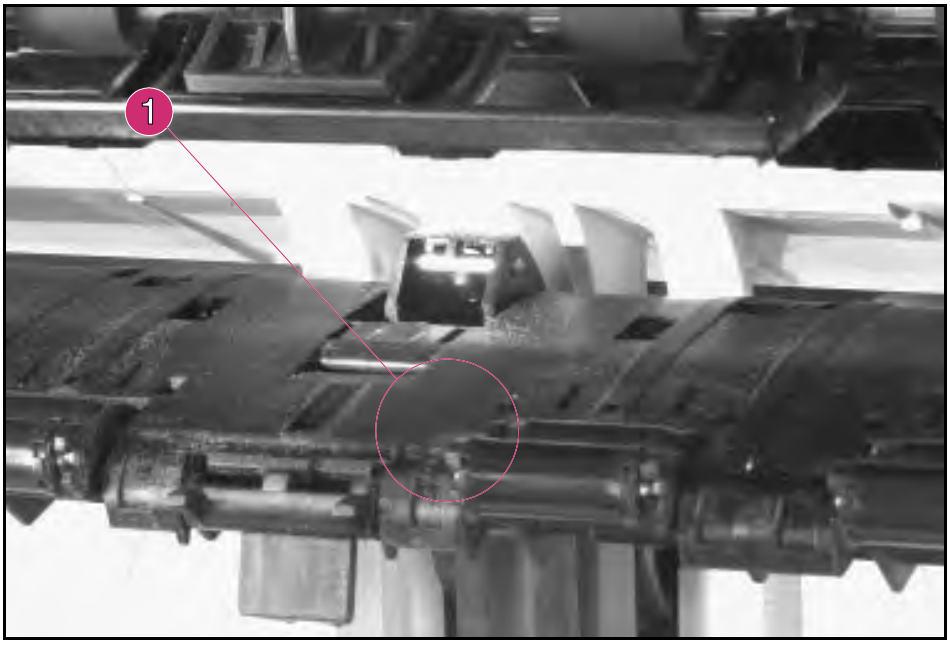
Metallic Tape and Housing Assembly

1. Remove all of the paper bins, and the blind cover (see Figure 6-86).
2. Lower the Delivery Head to the bottom of the frame.
3. Release the tape retainer by pushing the tab (see Figure 6-79, callout 1).
4. Carefully rewind the tape into its housing. Do not allow the tape to freely snap back into the housing (see Figure 6-80, callout 2).
5. Remove the tape housing by releasing the retaining tabs (Figure 6-81, callout 3) and rotating it upward.

To Reinstall:

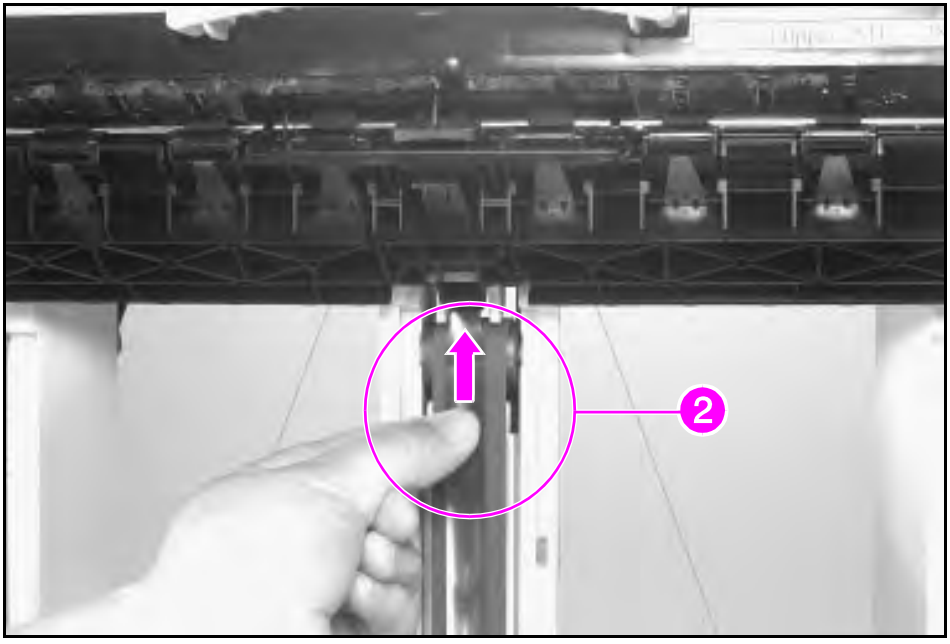
1. Replace the tape housing by inserting the top of the housing into position and snapping the housing down into place. Make sure that the tape is in direct contact with the Transport Belt by routing it underneath the small plastic guide.
2. Insert the top end of the tape into its retainer slot and gently push it upward to engage the retainer tab. Before replacing the tape holder, make sure that the tape is in direct contact with the Transport Belt.

Figure 6-79



Multi-Bin Mailbox/Mailbox with Stapler, Metallic Tape Retaining Pin

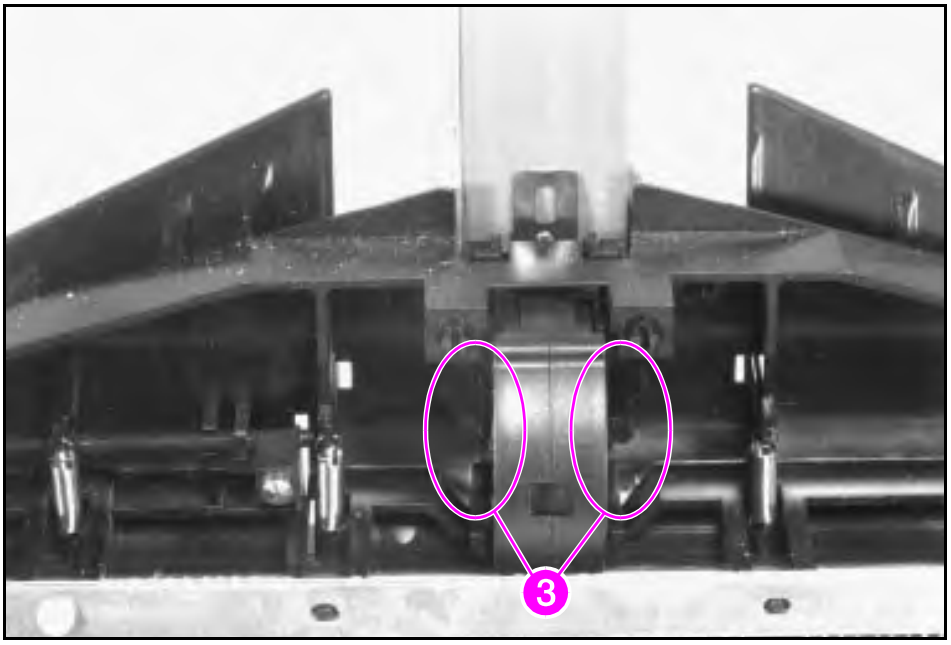
Figure 6-80



Multi-Bin Mailbox/Mailbox with Stapler, Metallic Tape Release

Note Figure 6-81 with callout 3 is on the following page.

Figure 6-81



Multi-Bin Mailbox/Mailbox with Stapler, Metallic Tape Housing

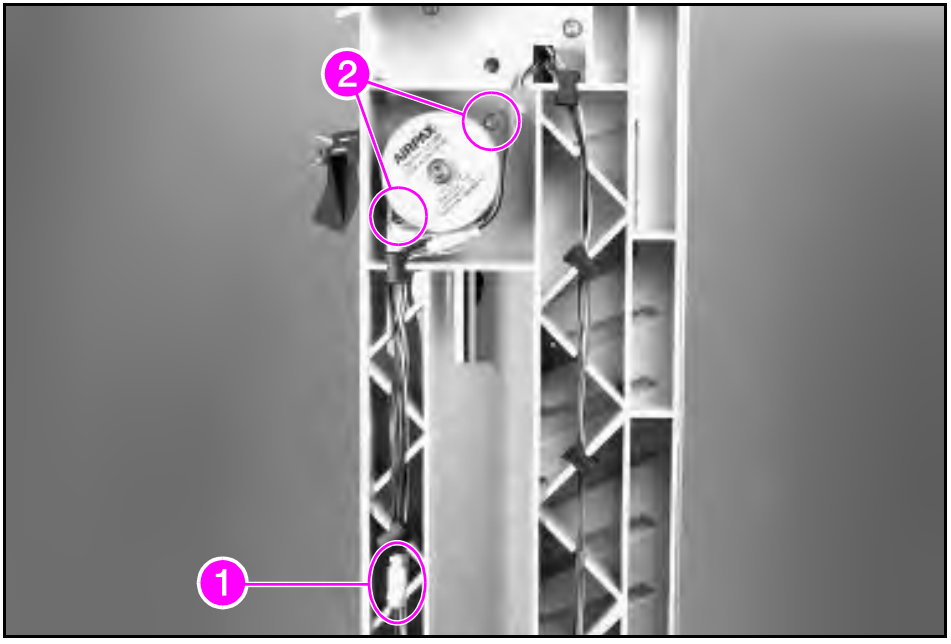
Motor, Delivery Head Position

1. Remove the left cover (see Figure 6-65).
2. Unplug the cable connector (Figure 6-82, callout 1).
3. Remove (2) screws, CH112 (Figure 6-82, callout 2), slide the motor downward to release it from the frame, and lift it straight out of the frame.

To Reinstall:

Make sure that the motor is positioned in the frame with the cable grommets facing down. Make sure that the motor cable connector is plugged into the correct mating connector.

Figure 6-82



Multi-Bin Mailbox/Mailbox with Stapler, Delivery Head Motor

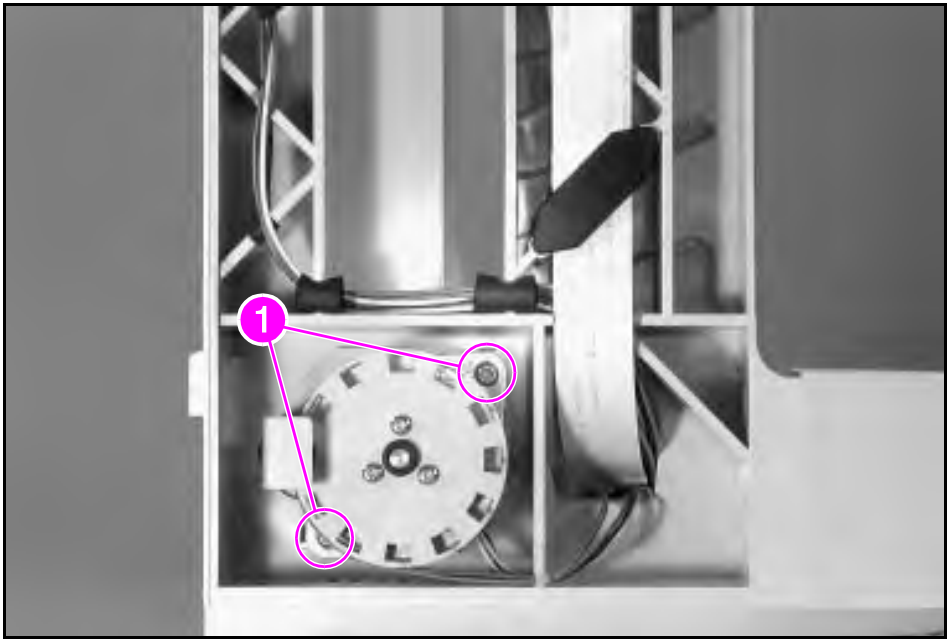
Motor, Transport Belt and Encoder Assembly

1. Remove the left cover (see Figure 6-65).
2. Remove all paper bins and the blind cover (see Figure 6-86).
3. Remove the Controller PCA (see Figure 6-87).
4. Remove (2) screws, CH112, from the motor assembly (Figure 6-83, callout 1).
5. Remove the small drive belt (Figure 6-84, callout 2) from the motor drive gear.
6. Pull the motor and Encoder Assembly clear of the frame while guiding the cables through the access hole in the bottom of the frame.

To Reinstall:

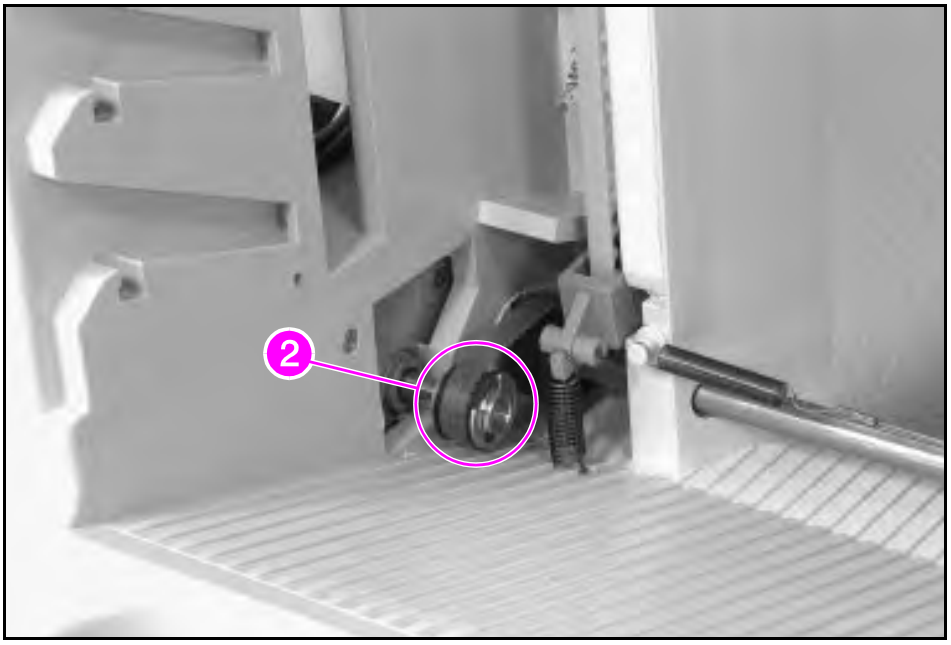
1. Make sure that the segmented disk at the back of the Transport Belt Motor is approximately centered in the Encoder Assembly photosensor (Figure 6-85, callout 3).
2. Replace the drive belt on the motor drive gear before installing and tightening the screws.

Figure 6-83



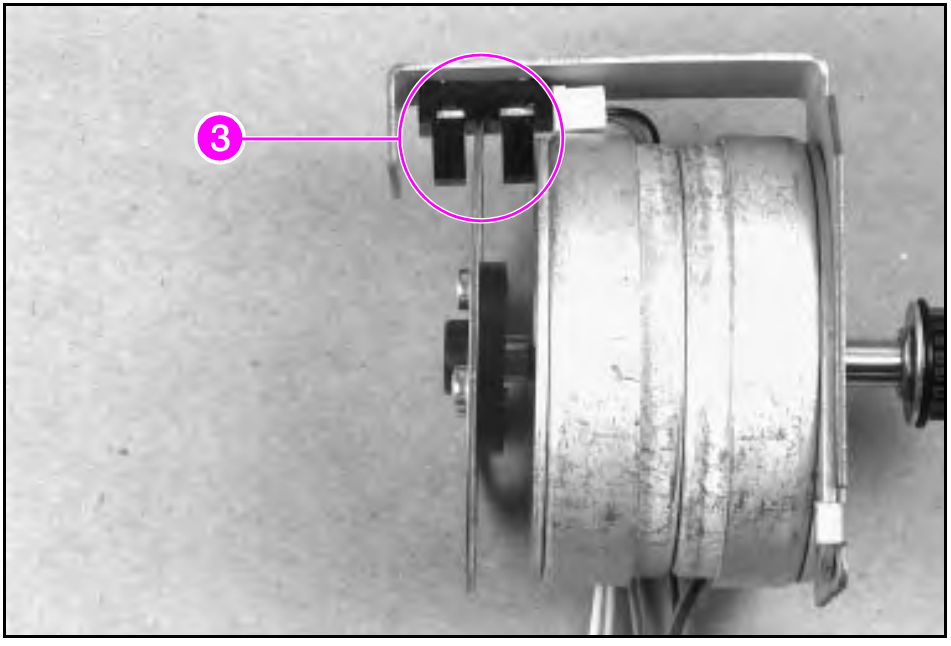
Multi-Bin Mailbox/Mailbox with Stapler, Transport Belt Motor Screws

Figure 6-84



Multi-Bin Mailbox/Mailbox with Stapler, Transport Belt Drive Gear

Figure 6-85



Multi-Bin Mailbox/Mailbox with Stapler, Transport Belt Encoder

Paper Bins and Blind Cover

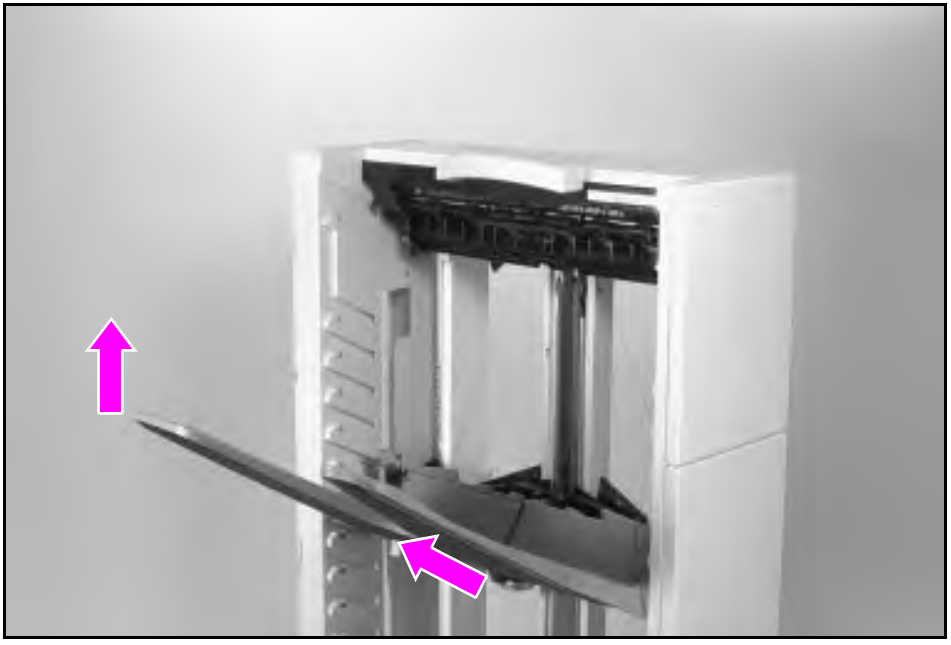
The procedure for removing the paper bins and the blind cover is the same. Each bin rests in its labeled slot.

1. Remove the paper bins and the blind cover from the top down.
2. Lift up on the outer edge of the bin (or blind cover) to clear the retaining notch, and pull it forward out of the frame (Figure 6-86).

To Reinstall:

Replace the paper bins from the bottom up. Place the blind cover between Bin 1 and the Face-Up Bin. Slide the bin into its designated slot and lower it into its retaining notch.

Figure 6-86

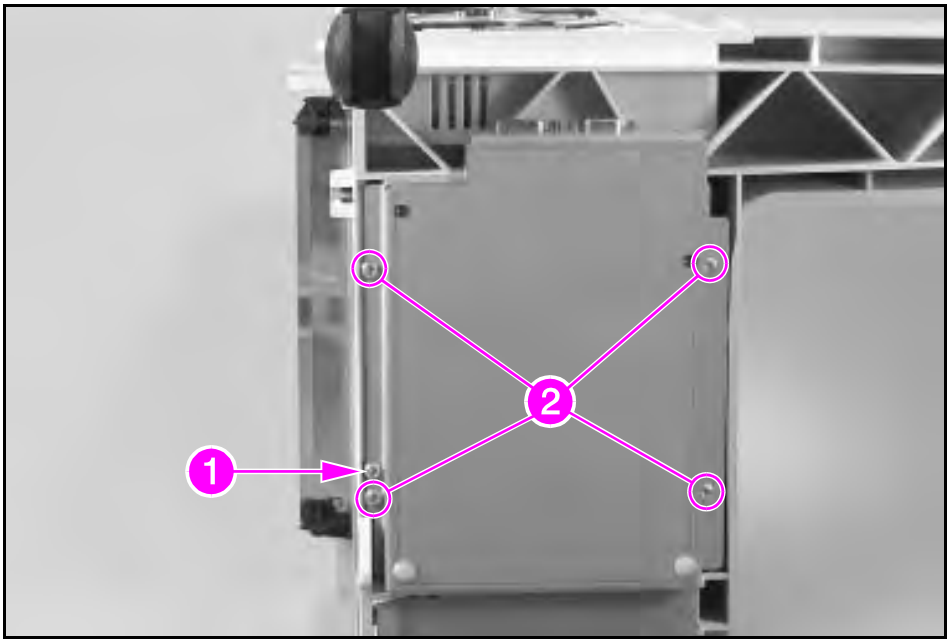


Multi-Bin Mailbox/Mailbox with Stapler, Bin Removal

PCA, Controller

1. Remove all paper bins and the blind cover (see Figure 6-86).
2. Lay the Multi-Bin Mailbox/Mailbox With Stapler over onto its right side.
3. Remove (1) grounding screw, CH112 (Figure 6-87, callout 1), and four self-tapping screws, CH113 (Figure 6-87, callout 2).
4. Unplug all of the connectors from the PCA.
5. Remove the PCA from its metallic box.

Figure 6-87



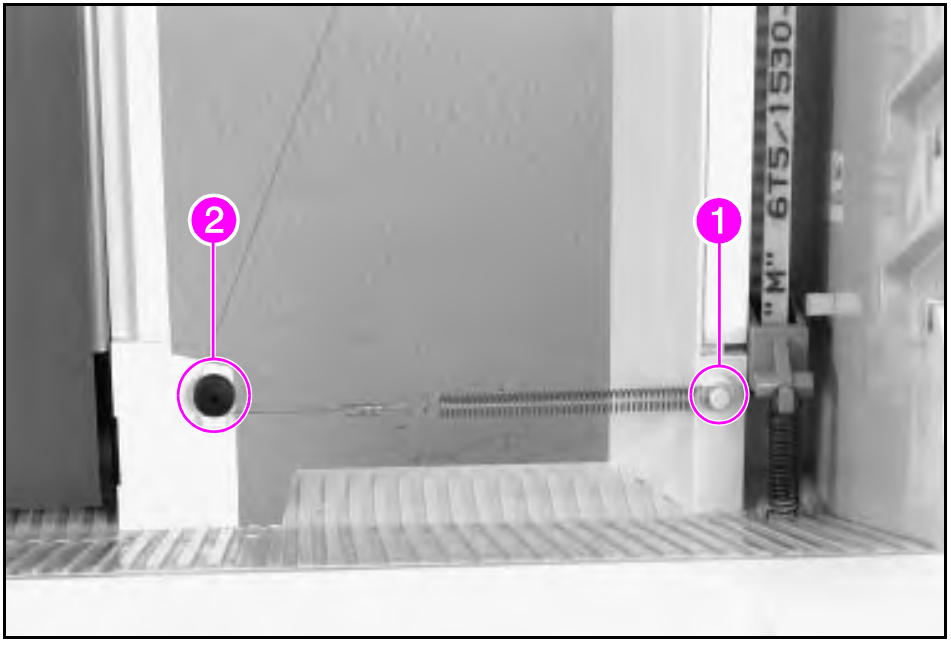
Multi-Bin Mailbox/Mailbox with Stapler, PCA Removal

Strings, Anti-Curl

The Anti-Curl Strings are attached to the Jam Access Door Assembly at the top of the frame, routed through small pulleys at the back of the Delivery Head Assembly, and then around pulleys near the bottom of the frame, where they are attached to tension springs.

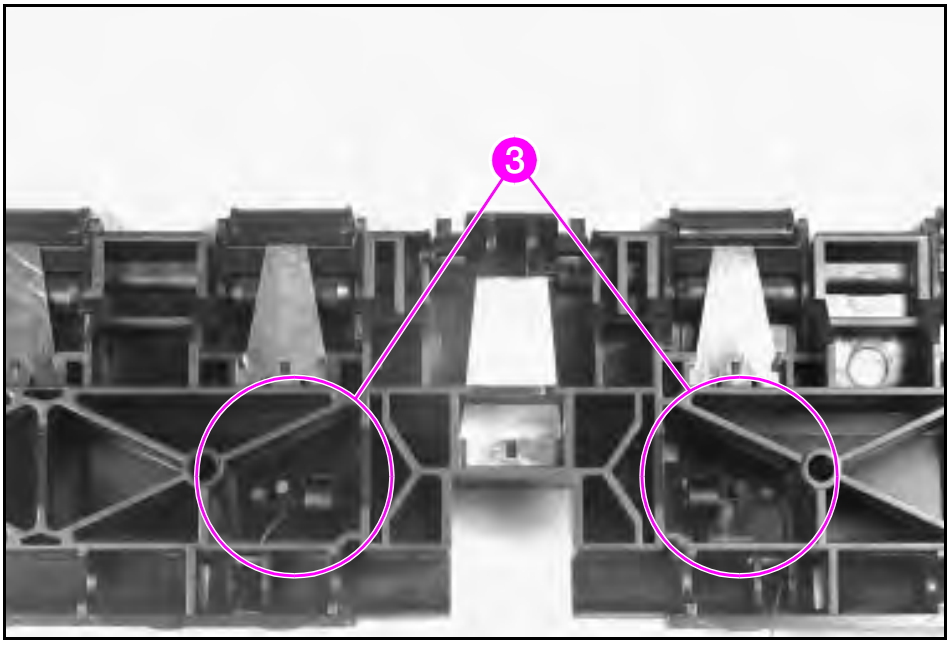
1. Remove all of the paper bins, and the blind cover (see Figure 6-86).
2. Disconnect the Anti-Curl String tension springs at the bottom of the frame (Figure 6-88, callout 1) and remove the strings from the lower pulleys by snapping them free (Figure 6-88, callout 2).
3. Remove both covers (see Figure 6-65).
4. Remove the Jam Access Door Assembly (see Figures 6-74 through 6-76).
5. Disconnect the upper ends of the Anti-Curl Strings from the Jam Access Door Assembly (Figure 6-89, callout 3).
6. Remove the Delivery Head Assembly (see Figures 6-66 through 6-68).
7. Remove the strings from the pulleys at the back of the Delivery Head by rotating the flat side of the pulley toward the outside of the frame (Figure 6-90, callout 4).
8. Remove the strings from the tension springs.

Figure 6-88



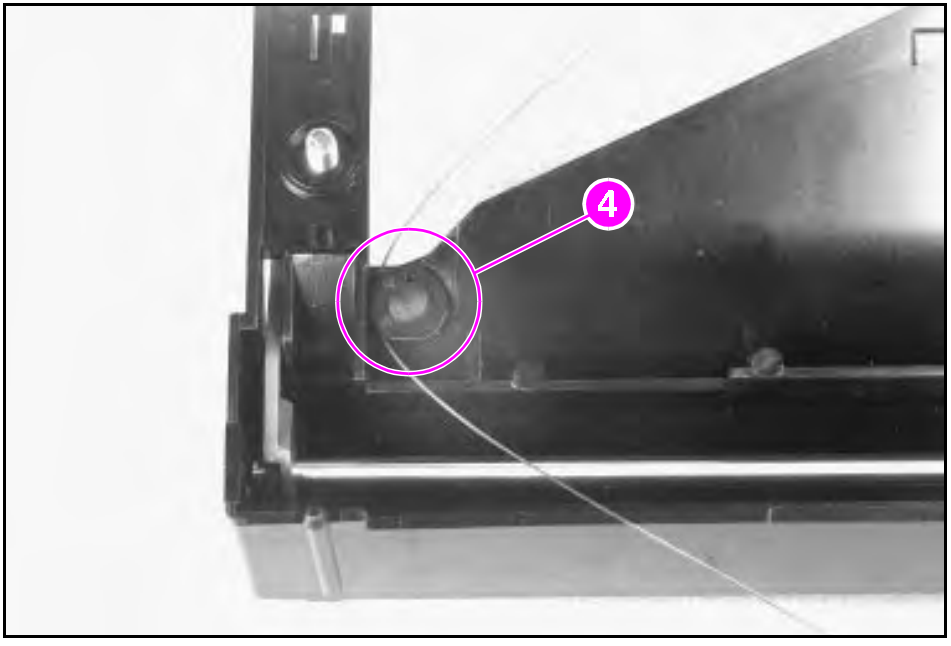
Multi-Bin Mailbox/Mailbox with Stapler, Anti-Curl String Lower Connection

Figure 6-89



Multi-Bin Mailbox/Mailbox with Stapler, Anti-Curl String Upper Connection

Figure 6-90



Multi-Bin Mailbox/Mailbox with Stapler, Anti-Curl String Middle Connection

Stapling Unit Assembly

The Stapling Unit Assembly is mounted in the Mailbox with Stapler, replacing the three top output bins.

1. Turn OFF the printer.
2. Make sure the Delivery Head Assembly is not in the stapler area. It should be in the bottom portion of the mailbox. You can move the Delivery Head Assembly downward gently with your hand.
3. Disconnect the cable going from the stapling unit to the mailbox.
4. Remove the Left Output Bin.
5. Lift up on the outer edge of the stapling unit to clear the retaining notches, and pull the stapling unit forward out of the frame (Figure 6-91).

To Reinstall:

Slide the stapling unit into its designated slot and lower it into its retaining notches. Replace the Left Output Bin. Connect the cable from the stapling unit to the mailbox. Turn the printer ON.

Figure 6-91

Mailbox with Stapler, Stapler Removal

Back Plate

1. Remove the Stapling Unit Assembly (see Figure 6-91).
2. Remove the Scan Bar by carefully pressing the tab on the scan bar backwards and downwards through the hole of the Stapling Bed (see Figure 6-92) with a flat-tip screwdriver, then lift the bar.
3. Remove the torx screw joining the Back Plate with the Stapling Unit (see Figure 6-93, callout 2).
4. Release the ground cable that is connected to the Back Plate (see Figure 6-93, callout 1).

To Reinstall

Caution

Keep the Top Cover Assembly open while reconnecting the cables. Cable damage could occur the next time the cover is opened if the cables are reinstalled too tightly.

Do not overtighten the screws when replacing the Back Plate.

Caution

Do not touch the metallic plate edges.

Figure 6-92

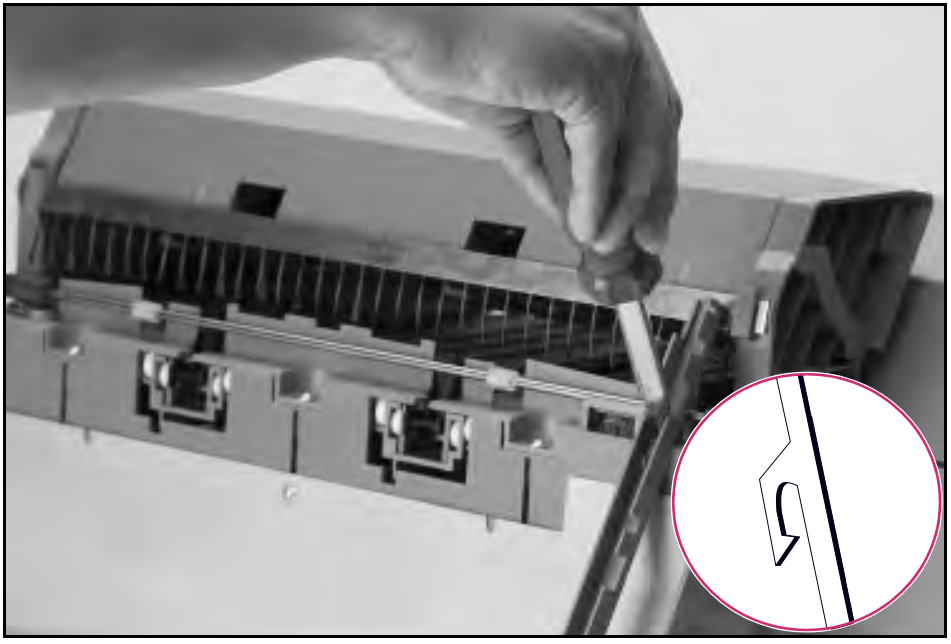
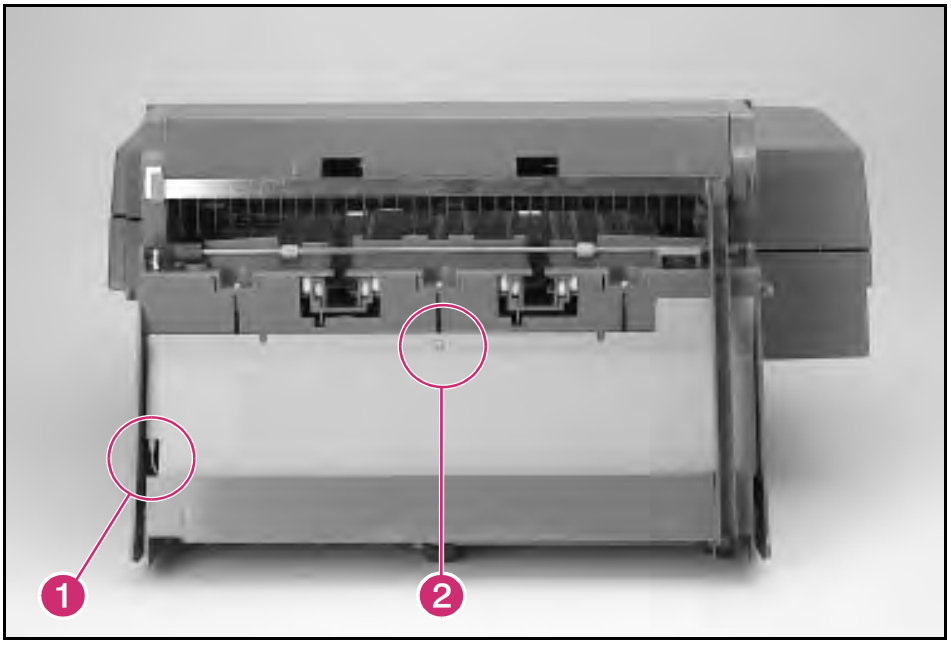


Figure 6-93



Stapling Unit Controller PCA

1. Remove the Stapling Unit Assembly (see Figure 6-91).
2. Remove the Back Plate (see Figure 6-92).
3. Remove (2) screws located on the right side of the Stapling Unit, holding the PCA board (see Figure 6-94, callout 1).
4. Unplug the cables that are connected to the PCA. Identify their color and size, and the ground cables (see Figure 6-95, callouts 1 and 2).
5. The board is supported by a hooked tab at the top of the card (see Figure 6-96, callout 1). Slide the board to the left and then down.

To Reinstall:

Slide the board up and then to the right.

Caution

Keep the Top Cover Assembly open while reconnecting the cables. Cable damage could occur the next time the cover is opened if the cables are reinstalled too tightly.

Figure 6-94

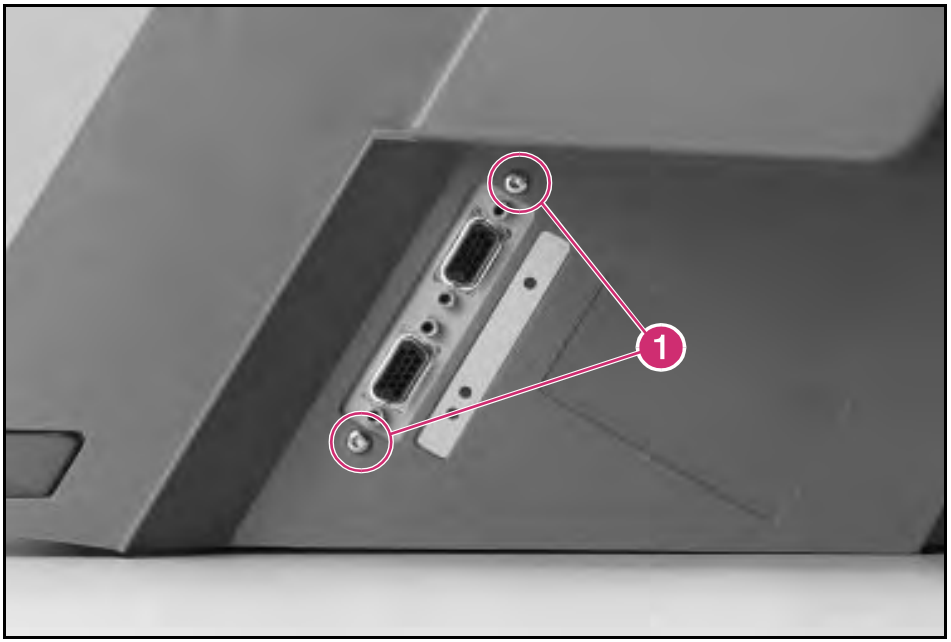


Figure 6-95

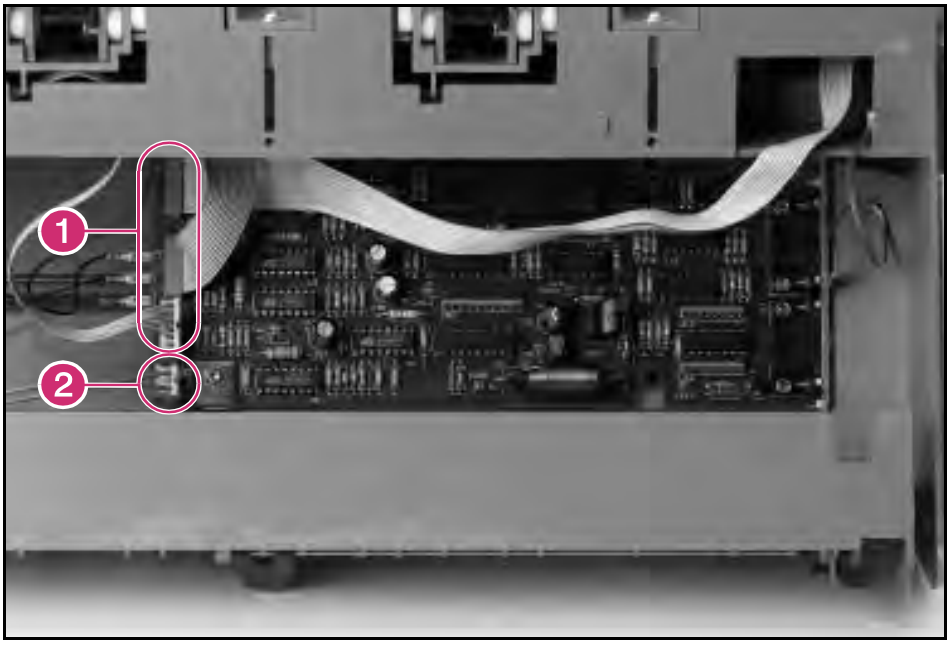
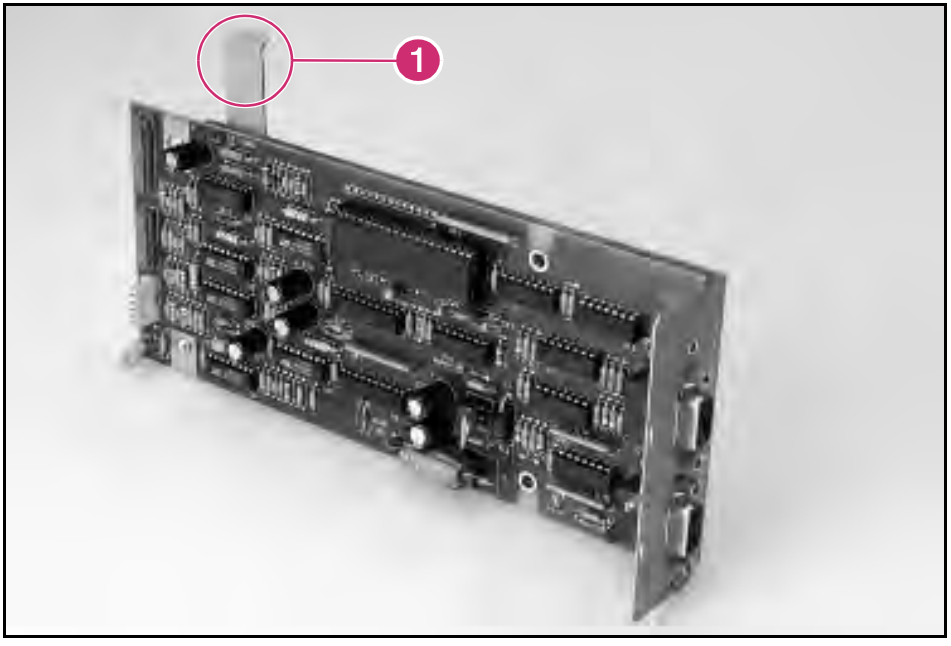


Figure 6-96



Top Cover Assembly

1. Remove the Stapling Unit Assembly (see Figure 6-91).
2. Open the Top Cover Assembly and remove the Back Plate (see Figure 6-92).
3. Unplug the ground and signal cables from the right side of the Stapling Unit Controller board, being careful to keep them in the cable holder.
4. On each side of the assembly, pull the hinge to release the (2) posts from the retaining notches (see Figure 6-97).

To Reinstall:

Caution

Keep the Top Cover Assembly open while reconnecting the cables. Cable damage could occur the next time the cover is opened if the cables are reinstalled too tightly.

Figure 6-97

Stapling Bed Assembly

1. Remove the Stapling Unit Assembly (see Figure 6-91).
2. Remove the Back Plate (see Figure 6-92).
3. Remove the Stapler Unit Controller PCA (see Figure 6-94).
4. Remove the Top Cover Assembly (see Figure 6-97).
5. Remove the wire frame by pushing both arms of the wire frame toward the center to clear the retaining notches and lift.
6. Release the brushes bar from the retaining notches and lift upwards.
7. Insert a flat-blade screwdriver into top of the Stapling Bed Assembly and push gently to release the latches in the front of the stapling bed (see Figure 6-98. callout 2).
8. Remove (3) torx screws that join the stapling bed with the rest of the unit (see Figure 6-98, callout 3).
9. To remove the Stapling Bed Assembly, lift the edge of the assembly where the stapler unit resides, then gently lift the entire Stapling Unit Assembly.

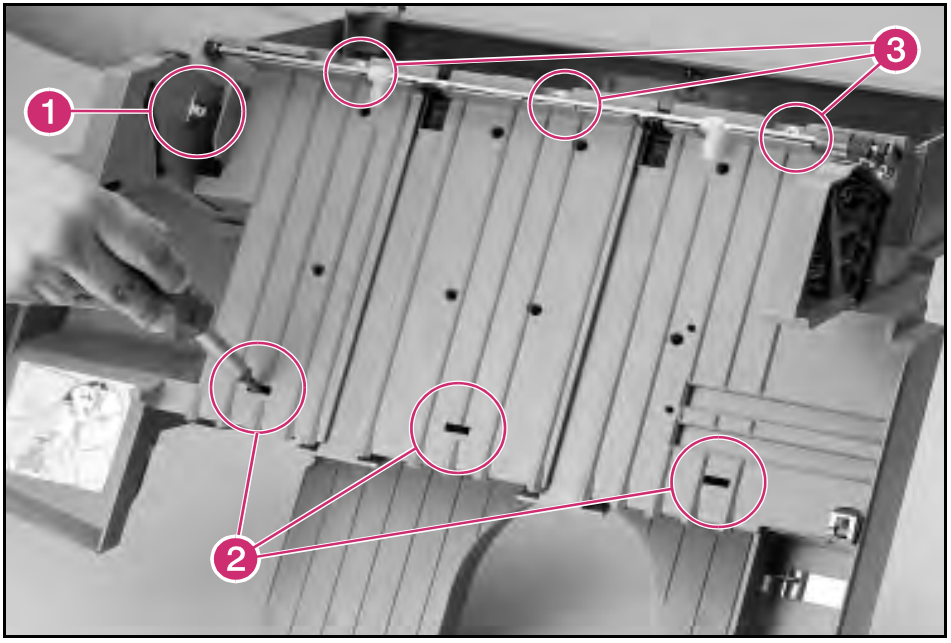
To Reinstall:

Replace the Stapling Bed. Replace the Stapling Unit Controller. Replace the actuator for the paper bin empty sensor.

Caution

Make sure that the actuator is in its proper place before replacing the Stapling Bed Assembly (see Figure 6-99, callout 3).

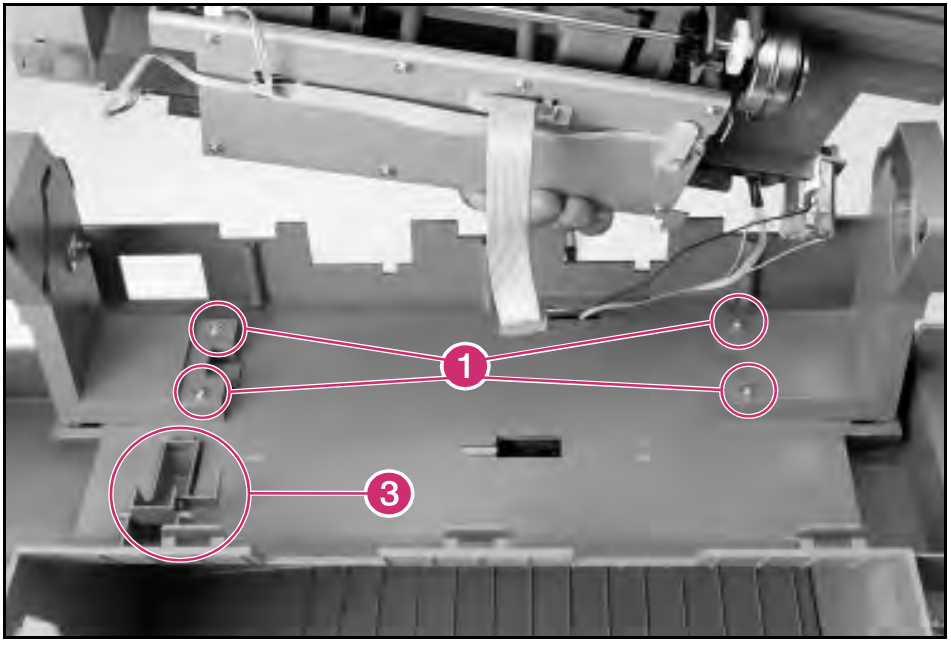
Figure 6-98



Hinges

1. Remove the Stapling Unit Assembly (see Figure 6-91).
2. Remove the Top Cover Assembly (see Figure 6-97).
3. Remove the Stapling Bed Assembly (see Figure 6-98).
4. Release the brushes bar from the retaining notches and lift upwards.
5. Remove (2) screws joining each hinge to the housing (see Figure 6-99, callout 1).
6. Disconnect the (2) cables in the hinge containing cables from the Stapling Unit Controller PCA (see Figure 6-95, callout 2).

Figure 6-99



7

Troubleshooting

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Troubleshooting Process

The troubleshooting process is a systematic approach that addresses the major problems first and then other problems as you identify the causes for printer malfunctions and errors. The Troubleshooting Process, Figure 7-1, on the following two pages, illustrates the major steps for troubleshooting the printing system. Each heading depicts a major troubleshooting step. A **YES** answer to the questions allows you to proceed to the next major step.

A **NO** answer indicates that additional testing is needed. Proceed to the referenced location and follow the directions for that area. After completing the additional testing, proceed to the next major step.

The following list describes the basic questions for the customer and the corresponding troubleshooting step to help you quickly define the problem(s).

Display
Page 7-9
Does the display panel indicate Ready, Offline or PowerSave?
Contains the procedures for correcting control panel messages and displaying and correcting error log codes.

Configuration
Page 7-10
Will the printer print configuration pages successfully?
Contains the procedures for printing the configuration pages, and evaluating and correcting system configuration.

Image Quality
Page 7-15
Does the print quality meet customer expectations?
Contains the image quality comparison tables, cleaning procedures, toner cartridge checks, and High-voltage Power Supply checks.

Error Log
Page 7-17
Are there recurring problems in the error log?
Contains information about printing the error log and evaluating the error history.

Communication
Page 7-19
Can the customer print from the host system successfully?
Describes how to determine if the printer is communicating properly with the host system.

Verification
Page 7-21
Will the printer print from all sources to all destinations, and have all of the errors in the errorlog been addressed?
Contains procedures for verifying the overall printer system operation.

Reference
Page 7-23
Contains detailed reference material such as the complete error code list, system schematics, a list of miscellaneous problems and solutions, and a list of all system sensors and their functions.

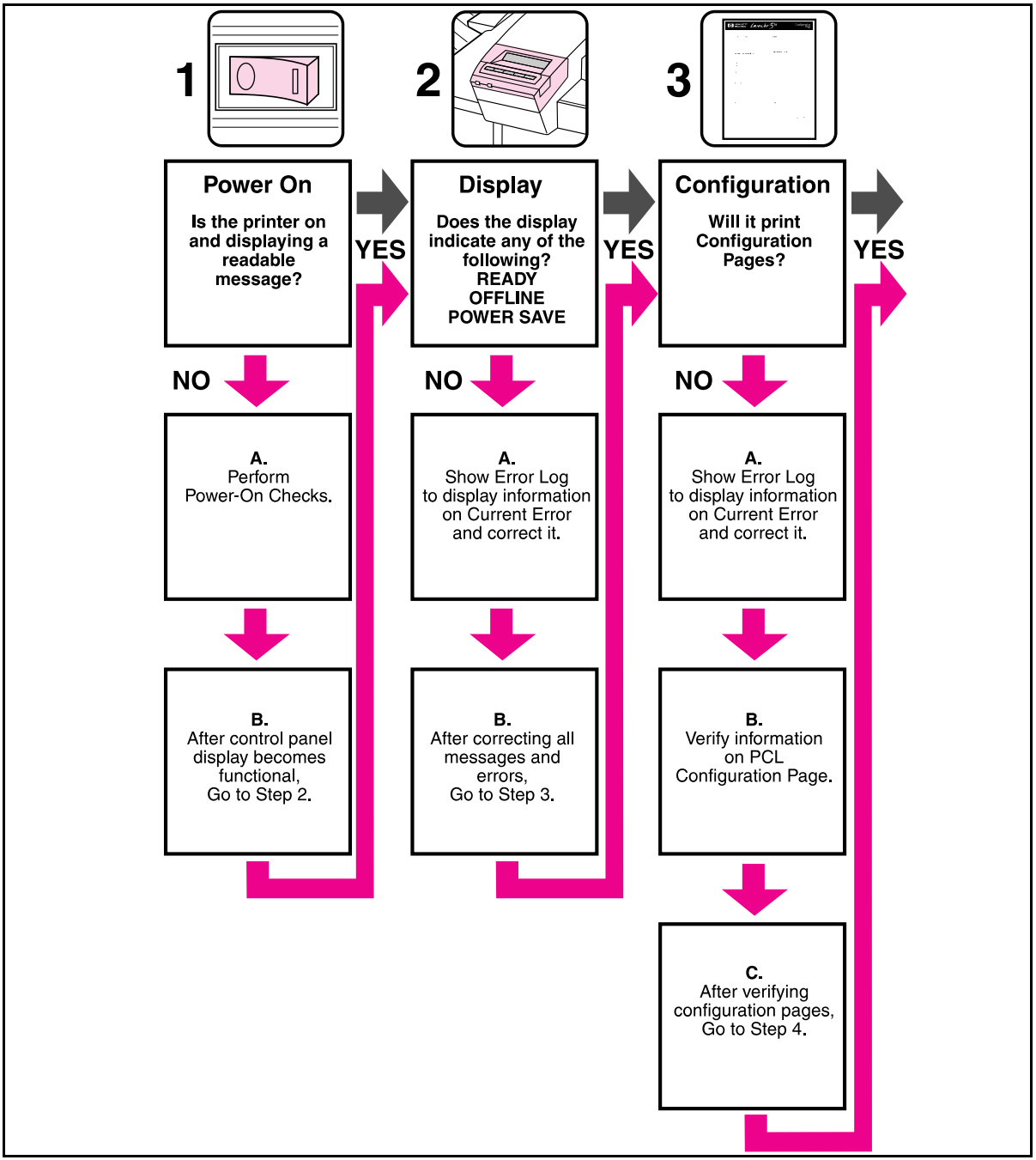


Figure 7-1 HP LaserJet 5Si / 5Si MX / 5Si Mopier Troubleshooting Process

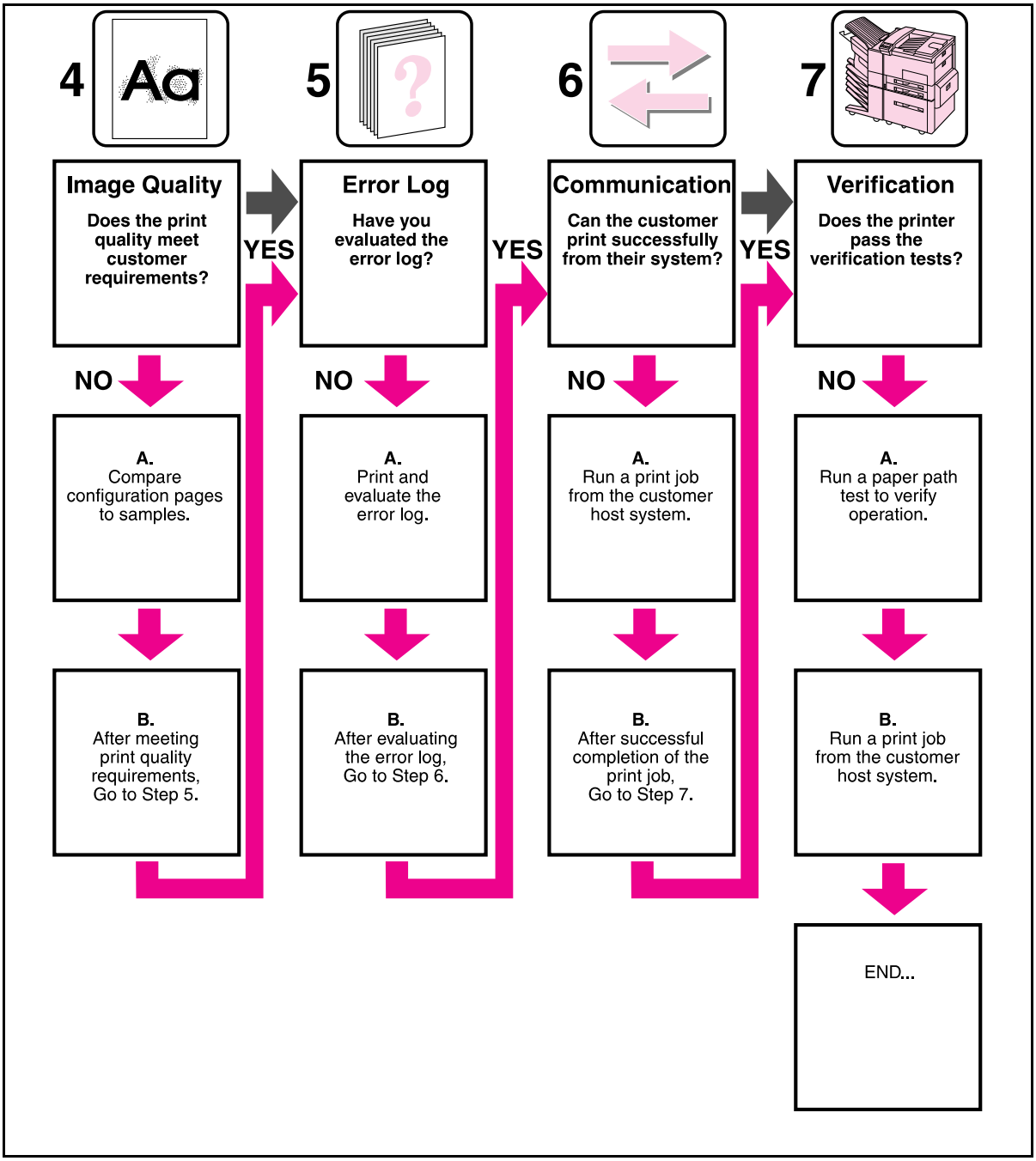

4
Aa
5
6
7
Image Quality
Does the print quality meet customer requirements?
YES
Error Log
Have you evaluated the error log?
YES
Communication
Can the customer print successfully from their system?
YES
Verification
Does the printer pass the verification tests?
NO
A. Compare configuration pages to samples.
B. After meeting print quality requirements, Go to Step 5.
NO
A. Print and evaluate the error log.
B. After evaluating the error log, Go to Step 6.
NO
A. Run a print job from the customer host system.
B. After successful completion of the print job, Go to Step 7.
NO
A. Run a paper path test to verify operation.
B. Run a print job from the customer host system.
END...

Figure 7-2 HP LaserJet 5Si / 5Si MX / 5Si Mopier Troubleshooting Process

Power-On

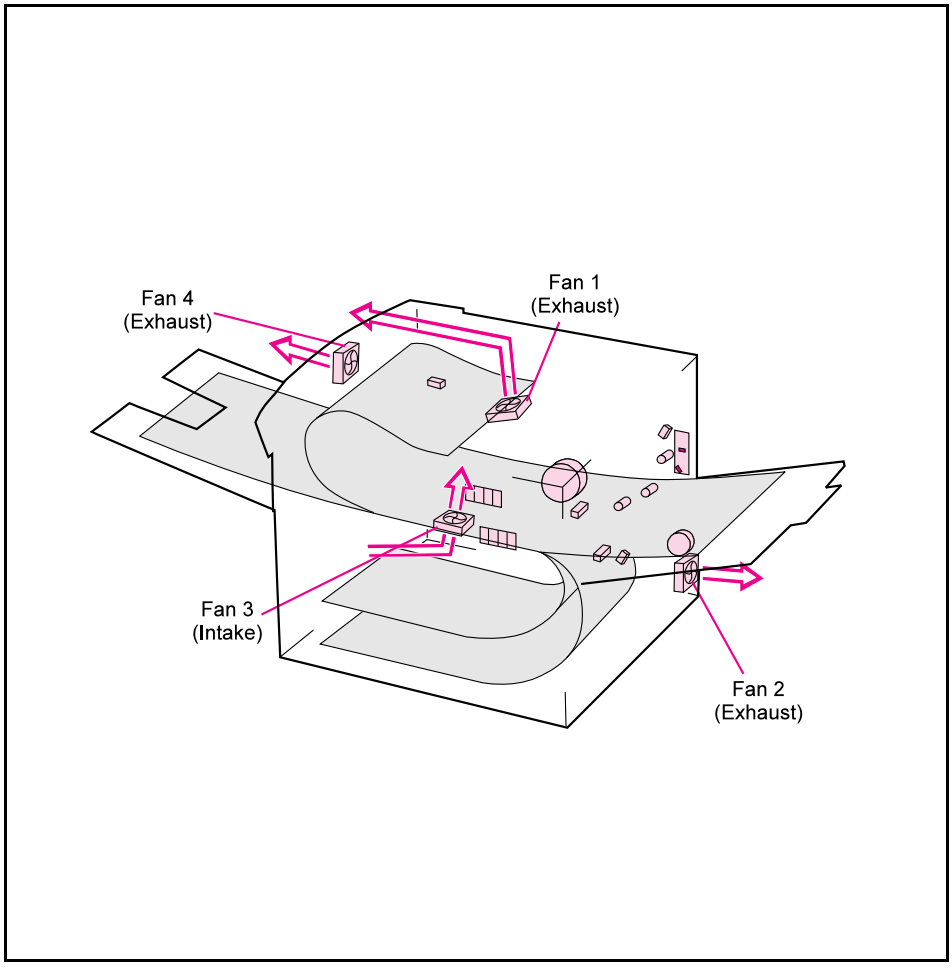
Overview

It is important to have the printer's Control Panel functional as soon as possible in the troubleshooting process so that the printer's diagnostics can assist in locating printer errors.

Table 7-1 Power-On

Problem	Action
1. Is AC power available at the printer's power receptacle?	Verify. See Table 1-7.
2. Is the printer's ON/OFF switch set to ON?	Push the switch to the ON position.
3. Are the printer's fans on? Ensure that the printer is not in PowerSave mode (See Figure 7-3 to locate the fans.)	Note: Fan operation is significant since all fans are controlled by the printer's DC Controller PCA. Operational fans indicate: 1. AC power is present in the printer. 2. DC power supply is functional (both 24vdc and 5vdc are being generated). 3. DC Controller PCA's micro-processor is functional.
NO	If the fans are NOT working, turn off the printer and remove the printer's Formatter PCA. Disconnect all the printer's paper handling options. Then turn on the printer and check the fans again. If the fans are still not working, perform the following steps: 1. Verify that all fans are connected to the DC Controller PCA according to Figure 7-33 2. Replace the low-voltage DC power supply. 3. Replace the DC Controller PCA.
YES	If the fans are working but the printer's Control Panel is blank, print an engine test. See the section titled "Engine Test." If the engine test was successful, perform the following steps: 1. Reseat or replace the cable from the Control Panel which is connected to J203 of the DC Controller PCA (see Figure 7-35). 2. Replace the printer's Formatter PCA. 3. Replace the Control Panel assembly. If the engine test was not successful, verify that no paper is in the paper path. Retry the engine test. If the engine test is still unsuccessful, replace the DC Controller PCA.

Figure 7-3



Fan Location and Airflow

Note When the printer is in PowerSave mode, the fans are off.

Table 7-2 Fans

Fan Number	Fan Name	Fan Location
1	Laser/Scanner fan	Exhaust air flows from the back of the printer, on the left-hand side of the fusing assembly.
2	Low-voltage Power Supply	Lower right-hand corner of the printer.
3	Formatter (intake)	Intake fan directly above the input power receptacle.
4	Face-down Delivery Unit	Directly above the center of the fusing assembly.

Engine Test

The engine test verifies that the print engine is functioning correctly. The Formatter PCA is completely bypassed during an engine test. This test is very useful for isolating printer problems. The engine test prints a full page of horizontal lines across the entire printable area, and is also useful for checking and adjusting registration. The engine test prints from Tray 3 only, and can be activated with the Formatter PCA removed.

Note

Tray 3 **must** be installed and loaded with paper to perform an engine test. Also, ensure that the EP toner cartridge is installed in the printer.

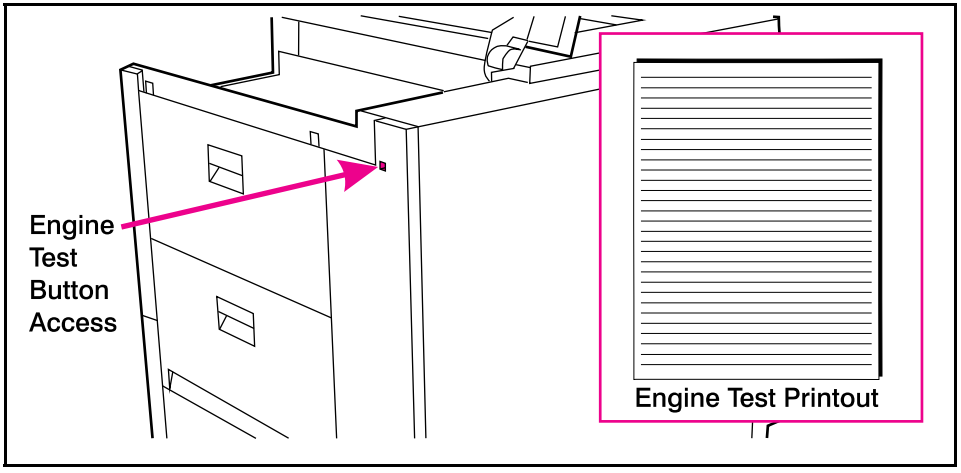
Engine Test Button Location

The engine test button is located on the DC Controller PCA. It is accessible through a hole at the right rear of the printer.

Printing an Engine Test

To print an engine test, use a non-metallic object to press the engine test button (see Figure 7-4). A single test page will print.

Figure 7-4



Engine Test Button

Display

Overview

Use the printer's Control Panel to access the error log to troubleshoot the printer. With the printer's test menu, you can access the printer's error log to display more information about the current error. The error log retains the printer's last 50 error messages.

Refer to the section titled "Reference" for more information about correcting printer error log messages.

Note

The error log codes and the error on the display panel do not always correspond. The numbers in the display panel message may not be the same in the error log. Ensure that you refer to the correct number in the "Reference" section.

Display and Evaluate the Error Log

If the printer cannot print or move any paper, follow these steps to display the error log:

1. Press [Menu] until TEST MENU appears.
2. Press [Item] until SHOW ERROR LOG appears.
3. Press [Select] to show the error log.
4. Press + to scroll through the error log.
5. Write down the error messages. For example:

```
50  13.59.11   52700
EXTERNAL INPUT DEVIC
```

Error Log on Display Panel

```
13.11 PAPER JAM
```

Display Panel Message

50 = Error Number
13.59.11 = Error Log Code
52700 = Page Count

6. Check the error log for specific error trends in the last 10,000 printed pages.
7. Ask the customer for any observed error trends.
8. Record any specific error trends, and review the "Error Log Interpretation" later in this chapter.
9. Refer to the error log table in the "Reference" section and follow the recommended action.
10. If the display panel indicates any messages other than Ready, Offline or PowerSave, restart at step 1. If not, go to the next section.

Configuration

Use the configuration pages to verify the proper installation of accessories, options, and personalities. When you print the configuration pages, the printer checks its internal controller and I/O interface, then prints two pages. One shows the overall printer configuration, and the other one shows the current menu settings. Refer to Figure 7-5 and Figure 7-6 or information about interpreting the configuration page. If any of the installed devices are not shown on the configuration pages, verify that the C-Link cabling is correctly connected and functional (Figure 7-7), and that DC power is available to the paper handling devices. Check and reseat suspect cable connections. If any of the cables are replaced, you must cycle the power to have the printer recognize the device again.

To print a PCL configuration page:

1. Press [Menu] until TEST MENU appears.
2. Press [Item] until PCL CONFIGURATION PAGE appears.
3. Press [Select] to print the configuration pages.

Verify Presence of Installed Personalities and Options on the Configuration Pages

Under Installed Personalities and Options, look for options such as:

- Postscript (C3169A)
- 420 MB Disk (C2965A)
- SIMM types RAM or ROM and sizes.

Verify that the options which are physically installed in your printer are reflected in the PCL configuration page. If an installed device is not shown on the PCL configuration page, check the following table.

Table 7-3 Devices

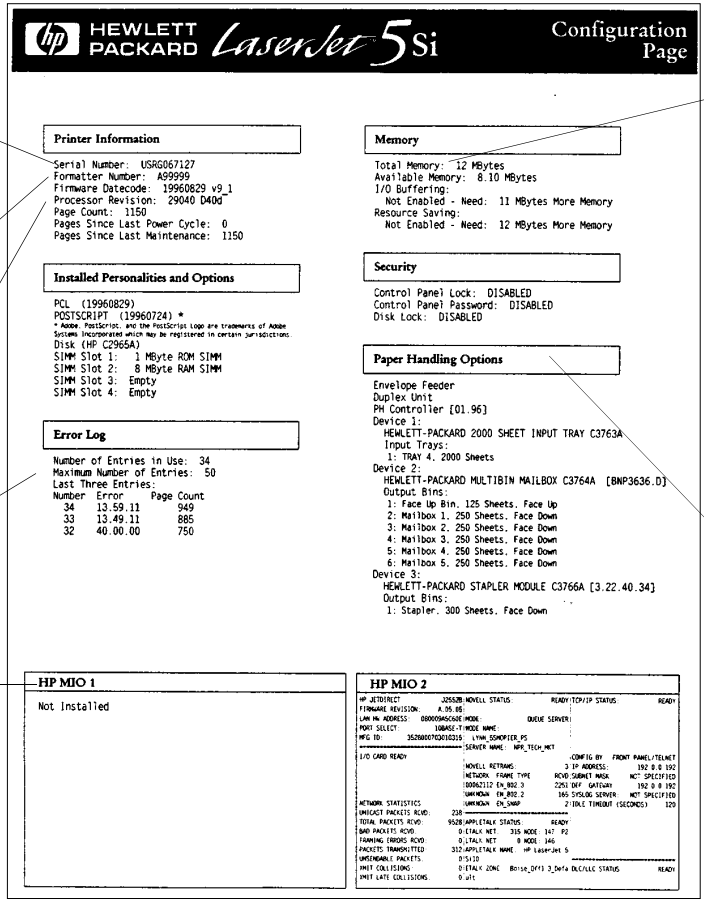
Device	Action if installed and not detected
Duplex Unit	Power-off, reseat, verify connector is not broken, then replace duplex cable and/or duplex unit and power-on.
Envelope Feeder	Power-off, reseat or replace envelope feeder and power-on.
Device 1 2000 Sheet Input Unit Device 2 Multi-Bin Mailbox Device 3 Stapler Module	Verify C-Link cables are installed correctly, see Figure 7-7. Remove all C-Link connections and visually inspect for connector damage on the cable pins and connector ends. Try using a different cable to connect the problem device directly to the External Paper Handling Controller. All C-Link cables are wired the same, but are different lengths. If a device is not recognized, replace device controller or defective C-link cable.
Device 1 2000 Sheet Input Unit	Verify AC power is present in the 2000 Sheet Input Unit. Note: The tray will not lift if C-link cable is not connected properly to External Paper Handling Controller.
Device 2 Multi-Bin Mailbox	Verify that the external DC power supply is receiving power. Verify that the external DC power supply output is connected to the Multi-Bin Mailbox controller. Note: The Multi-Bin Mailbox will not appear on the PCL configuration page without the C-Link cables properly installed, external power applied, or if Fuse F202 in 2000 Sheet Input Unit's Controller PCA is blown. Replace external DC power supply. Replace Multi-Bin Mailbox controller.

After verifying that the PCL configuration pages accurately reflect the installed devices, proceed to the section titled "Image Quality."

Note Multi-Bin Mailbox and Stapler are not supported with the LaserJet 5Si HM (C3124A).

Configuration Page Illustration and Key

Figure 7-5


HEWLETT PACKARD LaserJet 5Si Configuration Page
Printer Information
Serial Number: USRG067127
Formatter Number: A99999
Firmware Datecode: 19960829 v9_1
Processor Revision: 29040 D40g
Page Count: 1150
Pages Since Last Power Cycle: 0
Pages Since Last Maintenance: 1150
Installed Personalities and Options
PCL (19960829)
POSTSCRIPT (19960724) *
* Adobe, PostScript, and the PostScript Logo are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions.
Disk (HP C2965A)
SIMM Slot 1: 1 MByte ROM SIMM
SIMM Slot 2: 8 MByte RAM SIMM
SIMM Slot 3: Empty
SIMM Slot 4: Empty
Error Log
Number of Entries in Use: 34
Maximum Number of Entries: 50
Last Three Entries:
Number Error Page Count
34 13.59.11 949
33 13.49.11 885
32 40.00.00 750
Memory
Total Memory: 12 MBytes
Available Memory: 8.10 MBytes
I/O Buffering:
Not Enabled - Need: 11 MBytes More Memory
Resource Saving:
Not Enabled - Need: 12 MBytes More Memory
Security
Control Panel Lock: DISABLED
Control Panel Password: DISABLED
Disk Lock: DISABLED
Paper Handling Options
Envelope Feeder
Duplex Unit
PH Controller [01.96]
Device 1:
HEWLETT-PACKARD 2000 SHEET INPUT TRAY C3763A
Input Trays:
1: TRAY 4, 2000 Sheets
Device 2:
HEWLETT-PACKARD MULTIBIN MAILBOX C3764A [BNP3636.D]
Output Bins:
1: Face Up Bin, 125 Sheets, Face Up
2: Mailbox 1, 250 Sheets, Face Down
3: Mailbox 2, 250 Sheets, Face Down
4: Mailbox 3, 250 Sheets, Face Down
5: Mailbox 4, 250 Sheets, Face Down
6: Mailbox 5, 250 Sheets, Face Down
Device 3:
HEWLETT-PACKARD STAPLER MODULE C3766A [3.22.40.34]
Output Bins:
1: Stapler, 300 Sheets, Face Down
HP MIO 1
Not Installed
HP MIO 2

Configuration Page Example

The default S/N is AAXXYY99999. To set the correct S/N, refer to the SERVICE MODE procedure in Chapter 3 of this manual.

Formatter Number: Division use only. No functionality or accessibility.

Formatter and firmware's datecode and version number.

The three most recent error log messages display here.

The MIO Block shows network communication. See Figure 7-9.

Check the Total Memory to see if it corresponds with what is physically installed in the printer.

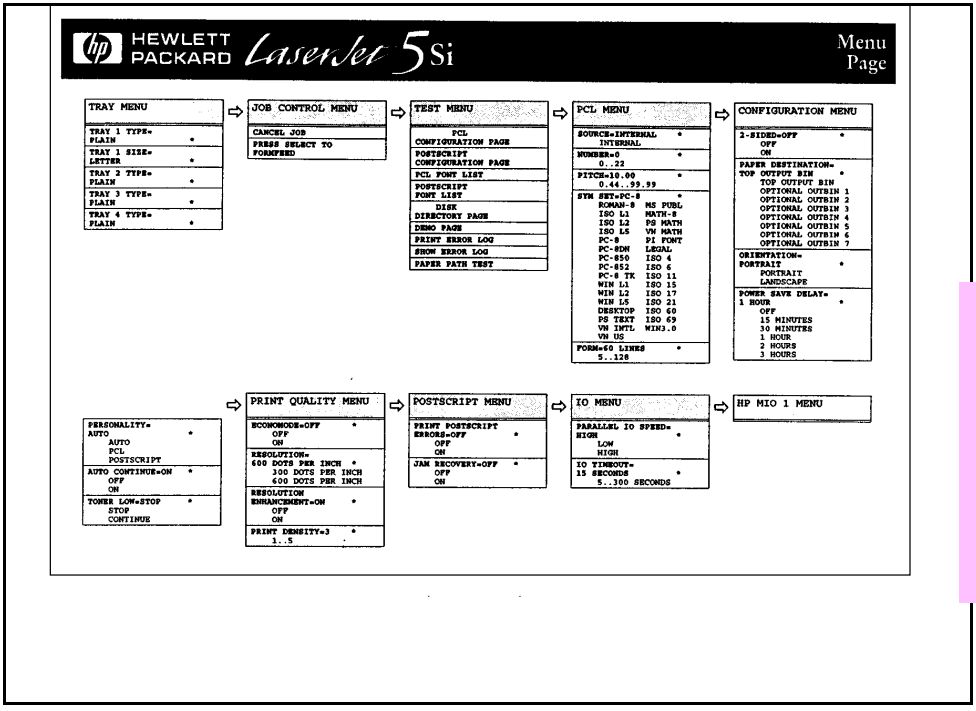
All the paper handling devices that are physically present should be listed in this section. Verify that each device is connected according to Figure 7- 7 .

When configured correctly:

Device 1=2000 Sheet Input Tray
Device 2=Mailbox
Device 3=Stapler

Menu Page Example

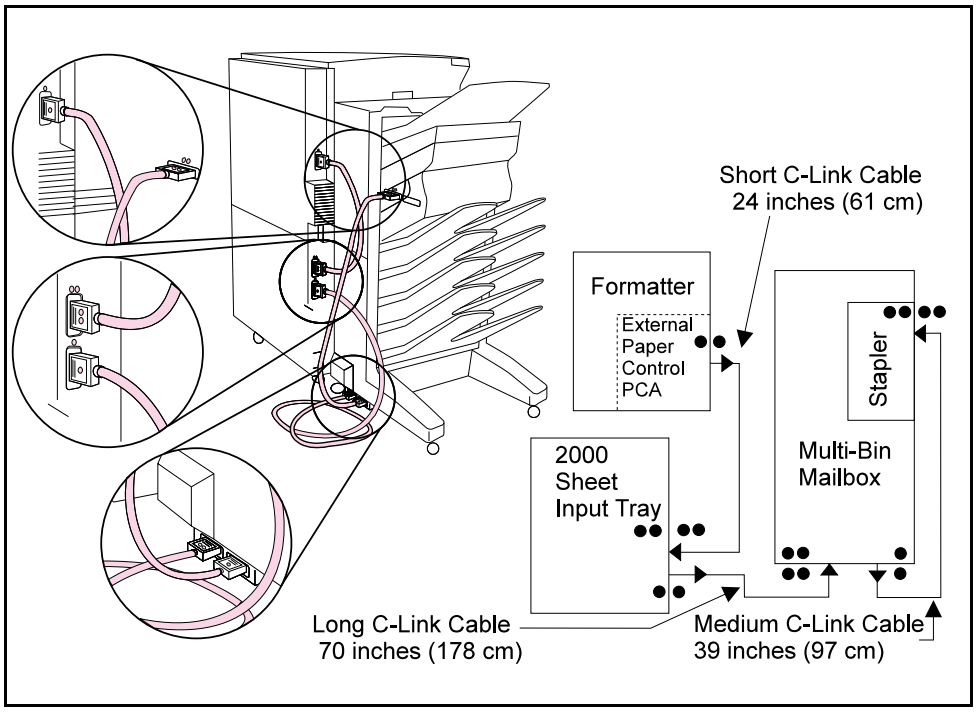
Figure 7-6



Menu Page Example

Communications Link (C-Link) Cables

Figure 7-7



Communications Link (C-Link)Cables, Supported Daisy Chain Connections

All C-Link cables have a single dot molded into the device output connector cable end, and two dots molded into the device input connector cable end. The devices may not be recognized by the External Paper Handling Controller if the cables are not connected exactly as shown in Figure 7-7.

Note

It is important that the C-Link cables are installed in the supported daisy chain configuration as shown in Figure 7-7. This is so that the devices are recognized and correctly reported on the error log.

Example: In the error log message "13.12.03", the last two digits ".03" indicate that Device 3 has failed in the supported configuration:

Device 1 = 2000 Sheet Input Tray
Device 2 = Multi-Bin Mailbox
Device 3 = Stapler Module

Note

It is possible, but not recommended, to attach the C-Link cables in other configurations. This will rearrange the supported device numbering. Keep in mind this configuration when evaluating the error log.

Image Quality

When you are working with customers, obtain a print sample before you begin troubleshooting their printer. Ask the customer to explain the quality they expect from the printer. The print sample will also help clarify the customer's explanation.

Table 7-4 Image Quality

Problem	Action
1. Do you have a print sample?	Obtain a print sample from the customer.
2. Does the problem repeat on the page?	Use the Repetitive Defect Ruler in the "Reference Section."
3. Is the toner cartridge full and is it manufactured by HP.	Check the toner cartridge using the check list on next page.
4. Is the printer clean?	Perform the cleaning procedure described in Chapter 4 of this manual.
5. Is the customer using print media that meets all HP paper specification standards?	For more information about HP's paper specification standards, see Chapter 1 of this manual and the *HP LaserJet Family Paper Specification Guide.*
6. Is the print sample similar to those in the Print Quality Tables in the "Reference." section?	Compare and perform the actions recommended in the Print Quality Tables.
7. Is the problem on the drum or transfer roller?	Perform the "Half Self Test" in the "Reference Section" to determine where the defect is. If the defect is on the drum, replace the Toner cartridge. If it is not on the drum, replace the transfer roller.

Check the Toner Cartridge

Image formation defects are often the result of toner cartridge problems. If there is any doubt, always replace the toner cartridge before troubleshooting image defects.

Use the following check list to ensure that the toner cartridge is still operable.

- Ensure that the toner cartridge has toner.
  Full toner cartridge weight =3000 grams (106 oz)
  Empty weight = 2200 grams (80.5 oz)
- Check the expiration date of the toner cartridge (stamped on the cartridge box).
- Check the toner cartridge to see if it has been disassembled or refilled.
- Ensure that the toner cartridge is seated properly in the printer cavity.
- Inspect the cartridge for leaking toner through worn seals. (If the drum has been manually rotated it may have caused internal damage and toner spills may result.)

Note

Toner Cartridges are rated for 15,000 images at 5% coverage. It is possible to wear out the gears and the cartridge seals before TONER LOW is displayed if the 15,000 image expectancy is exceeded.

- Check the surface of the photosensitive drum in the cartridge to see if it has been damaged or scratched. Touching the drum will contaminate the photosensitive surface and may cause spotting and defects during printing.
- White areas on the page may indicate that the drum has been exposed to light for too long. If white areas appear, stop the printer and wait a few minutes. This should eliminate most defective images. If not, the toner cartridge may be placed in a dark environment for several days, which may restore some life to the drum.

Faulty Image Examples

The “Reference” section contains Image troubleshooting and sample image defects and their possible causes. Since there are many variables in the printing process, it is possible to encounter image defects that are not shown in the examples. If you find a defect that is not depicted, record the probable cause along with the printing environment conditions and save a copy of the defect for future reference.

Error Log

Use the error log to diagnose and troubleshoot printer errors and intermittent failures. Also, you can use "Show Error Log" under "Display and Evaluate the Error Log" discussed earlier in this chapter.

Print and Evaluate the Error Log

The printer's internal error log stores the last 50 errors and can be printed. To print the error log:

- Press [Menu] until TEST MENU appears.
- Press [Item] Until PRINT ERROR LOG appears
- Press [Select] to print the error log.

After printing the error log:

- Check the error log for specific error trends in the last 10,000 printed pages.
- Ask the customer for any observed error trends.
- Record any specific error trends.
- Refer to the error log table in the "Reference" section of this chapter to interpret error log codes.

Error Log Interpretation

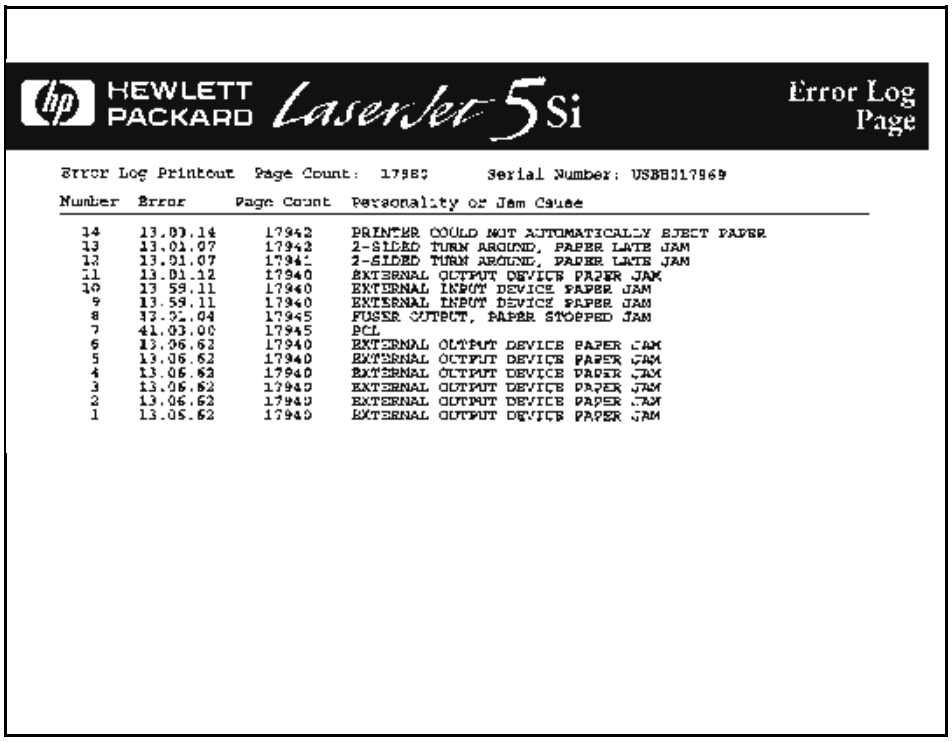
The error log is the key tool in troubleshooting printer problems. Figure 7-8 shows a typical error log. The error log shows the current page count at the top center of the page, with the printer's serial number directly to the right of the page count. The left column is the error sequence number, with the error listed at the top (the highest sequence number is the most recent error logged). The next column is the page count at the time of the error, and the last column is the Personality (PCL or PostScript) column or the Jam Cause at the time of the error.

The error log records all errors in a different format than the Control Panel Display. For example, should a 50.1 FUSER ERROR / CYCLE POWER be displayed on the Control Panel Display, the error log will record a 50.02.01 error, with the 02 signifying that 2 sensors were blocked. Likewise, when a 13.1 through 13.9 are displayed on the Control Panel, the error log will record a 13.0x.01 through 13.0x.09, where x = the number of sensors blocked in the printer.

When an error is detected in an Optional Paper Handling Device, a 13.11, 13.12 or 66.xx.yy will be posted to the Control Panel.

Whenever a 13.xx appears on the Control Panel, a good practice is to clear all the paper from the printer, take the printer offline, and print the error log. If you cannot print the error log, you can still display it on the display panel. Write the error next to the last error logged. The last error is the error at the top of the error log printout with the highest number in the leftmost column.

Figure 7-8



HEWLETT PACKARD LaserJet 5Si — Error Log Page

Error Log Printout Page Count: 17983 Serial Number: USBH317969

Number	Error	Page Count	Personality or Jam Cause
14	13.03.14	17942	PRINTER COULD NOT AUTOMATICALLY EJECT PAPER
13	13.01.07	17942	2-SIDED TURN AROUND, PAPER LATE JAM
12	13.01.07	17941	2-SIDED TURN AROUND, PAPER LATE JAM
11	13.01.12	17940	EXTERNAL OUTPUT DEVICE PAPER JAM
10	13 59.11	17940	EXTERNAL INPUT DEVICE PAPER JAM
9	13.59.11	17940	EXTERNAL INPUT DEVICE PAPER JAM
8	13.02.04	17945	FUSER OUTPUT, PAPER STOPPED JAM
7	41.03.00	17945	PCL
6	13.06.62	17940	EXTERNAL OUTPUT DEVICE PAPER JAM
5	13.06.62	17940	EXTERNAL OUTPUT DEVICE PAPER JAM
4	13.06.62	17940	EXTERNAL OUTPUT DEVICE PAPER JAM
3	13.06.62	17940	EXTERNAL OUTPUT DEVICE PAPER JAM
2	13.06.62	17940	EXTERNAL OUTPUT DEVICE PAPER JAM
1	13.06.62	17940	EXTERNAL OUTPUT DEVICE PAPER JAM

Error Log Page

To interpret the error log:

- Each individual entry in the log is called an "ERROR," with all errors occurring at the same page count an "EVENT." Read the Recommended Action for each error comprising an event to gain a clear picture of what took place during that event. Events usually conclude with a timeout or no response from device (Error 66.nn.nn in printer logs) which requires a power cycle of the print engine.
- It is assumed that any Paper Handling Devices are connected as shown in the C-Link Cable Diagram (Figure 7-7). The errors will be logged with different device numbers if any non-standard cabling is installed.
- Use the error log table in the “Reference” section of this chapter to associate errors in the error log with the Control Panel error message. Follow the Recommended Action listed in the table for each error or event.

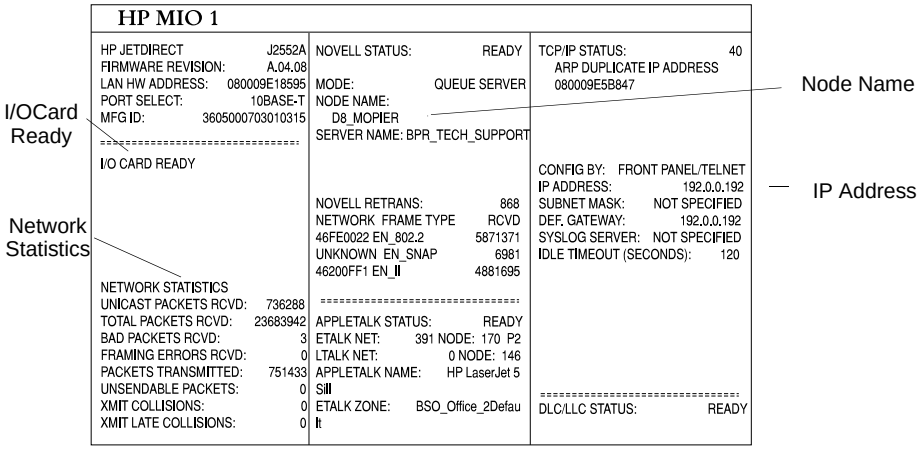
Communication

Ask the customer to run a print job from the host system. If the print job is successful, proceed to the following step, “Verification.”

Verify Communication

Print the PCL configuration page and study the HP MIO block. The MIO block will appear on the bottom portion of the configuration page. An example of a properly operating MIO block appears in Figure 7-9.

Figure 7-9



MIO Block on Configuration Page

- If the MIO Jet Direct Card has successfully powered up and completed its internal diagnostics, the "I/O CARD READY" message will appear. If communication is lost, an "I/O NOT READY" message appears followed by a two digit error code. Consult the HP JetDirect Network Interface Configuration Guide for further details and recommended action.

- The "Network Statistics" column indicate that the network activity has been occurring. Bad packets, framing errors, un-sendable packets and collisions should be minimal. If a high percentage (greater than one percent) of these occur, contact the network administrator. All of the statistics are set to zero when the printer is powered-off.

- The "Novell Status" block should state the Novell printer server name to which the printer is connected. If the node name reads "NPIxxxxxx" (xxxxxx=last six digits of the MIO's LAN address), the MIO card has not been configured for a Novell server. This could indicate that the card is operating under a IPX protocol other than Novell. Consult with the network administrator if the Node Name is not present.

- In the TCP/IP protocol block, the default IP address is "192.0.0.192." It is acceptable to operate the printer with this default address. The error message, "ARP DUPLICATE IP ADDRESS" may appear in this block. This is also an acceptable error code if the TCP/IP protocol is not being used. Please check with the network administrator to determine the correct IP Address for the printer.

Verify Host System Operation

Try to print to another known working printer or move the failing printer to a known working location. Verify that the correct driver is installed and operating properly. Check with HP Service and Support in the User's Manual to obtain the latest Windows and PostScript drivers.

Note

To display the printer driver version:

In the printer driver, select the **Print Quality** tab and click on **About** to display the printer driver revision level.

Verify Network and Server Operation

- Try to print the job to the printer's parallel port.

- Try to print from the host system through the network to another printer. Contact the network administrator for assistance.

Verification

Paper Path Test

Using the error trend information from Step 5 (Error Log), you may verify a specific printer paper path with the paper path test. You must first set the desired paper destination in the configuration menu and then select the paper path test. The paper path test menu will allow you to select the desired paper source and number.

Note In order to perform the paper path test, the printer must be configured to mailbox mode. If the printer is not in mailbox mode, ask the JetAdmin administrator to change the configuration to mailbox mode to complete this test.

Note Multi-Bin Mailbox and Stapler are not supported with the LaserJet 5Si HM (C3124A).

To perform a paper path test:

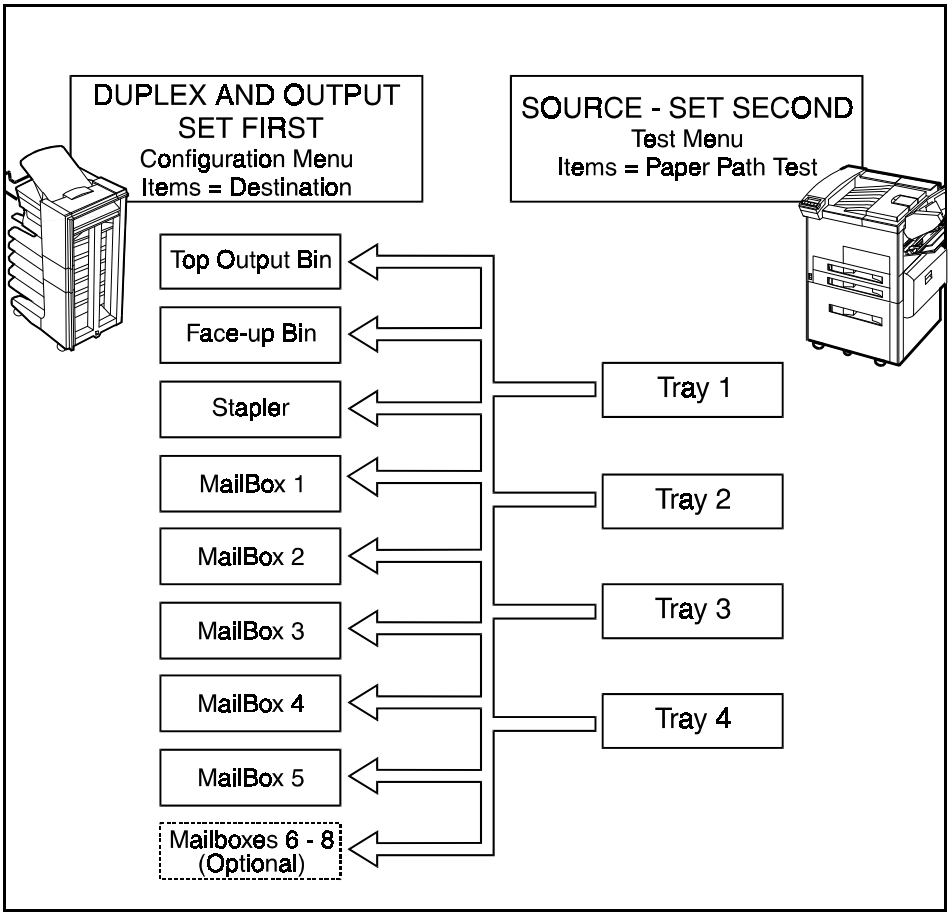
Set Destination and Duplex first:

- Press [Menu] until CONFIGURATION MENU appears.
- Press [Item] until PAPER DESTINATION appears.
- Press [+] to cycle selections until the desired paper destination appears.
- Press [Select] to select the desired destination for the Paper Path Test.
- To set duplex, press [Menu] until CONFIGURATION MENU appears.
- Press [Item] until 2 SIDED = XX appears.
- Press + to select duplex or single side.

Set Source and number of pages last:

- Press [Menu] until TEST MENU appears.
- Press [Item] until PAPER PATH TEST appears.
- Press [Select].
- Press [+] to cycle selections until the desired paper source appears.
- Press [Select].
- Press [+] to cycle selections until the desired number of images appears. You can choose 1, 10, 50, 100 or 500 copies.
- Press [Select] to perform the Paper Path Test.

Figure 7-10



Paper Path Test Source and Output Selection

Customer Print Job

Ask the customer to send a print job from the problem source(s) to the problem destination(s). Try to recreate the paper jam errors by having the customer do typical print jobs and the type of print job that has been causing the paper jams.

Note

When verifying print jobs, ensure that all of the settings are selected as desired. Keep in mind that application settings take priority over Driver settings, which take priority over the the printer control panel settings. If a single setting is not present in the application, but is set in the driver, that will override the front panel settings.

JetAdmin does have capabilities to override paper types and sizes and certain conditions.

Reference

Control Panel Messages and Errors

Printer messages displayed on the control panel provide five categories of information. Each message category is assigned a priority. If more than one condition occurs at the same time, the highest priority message is displayed. When it has been cleared, the next priority message will be displayed, and so on. The displayed messages and their priorities are:

- Catastrophic System Messages
- Service Messages
- Error Messages
- Attendance Required Messages
- Device Status Messages

Error, Service, and Catastrophic System messages are preceded by a number designation. Device Status and Attendance Required messages (except for paper jam messages) do not have a number designation.

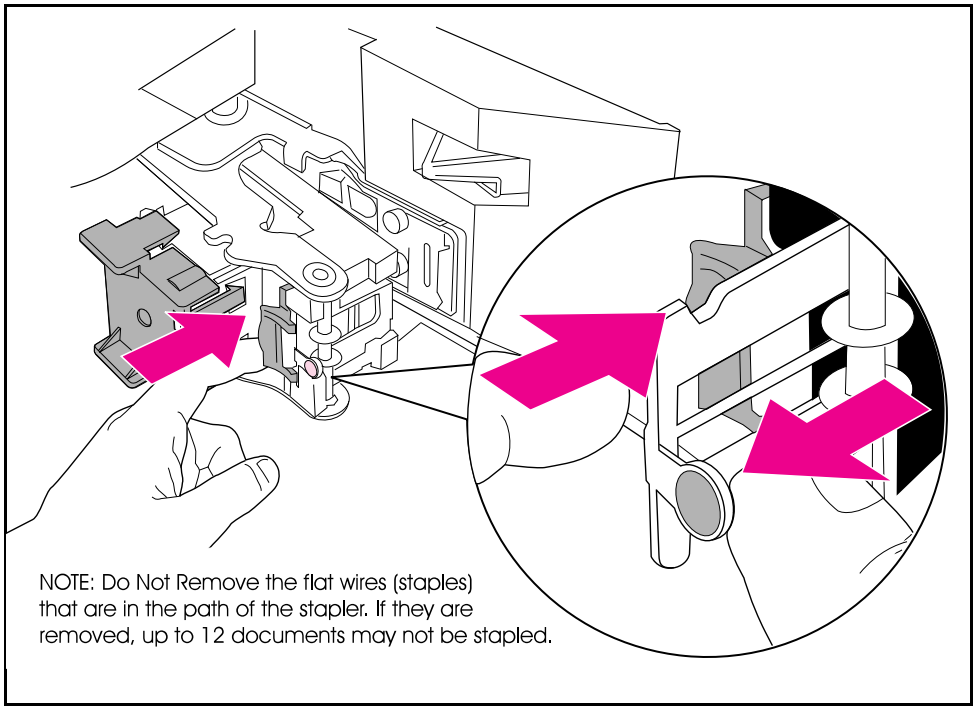
Note

The Error Log Table is organized by the display panel messages. All of the alphabetical messages are listed first, followed by numeric display panel messages. The error log codes (the second column) are in no order. They are merely listed with the associated display panel message.

Table 7-5 Printer Control Panel Messages

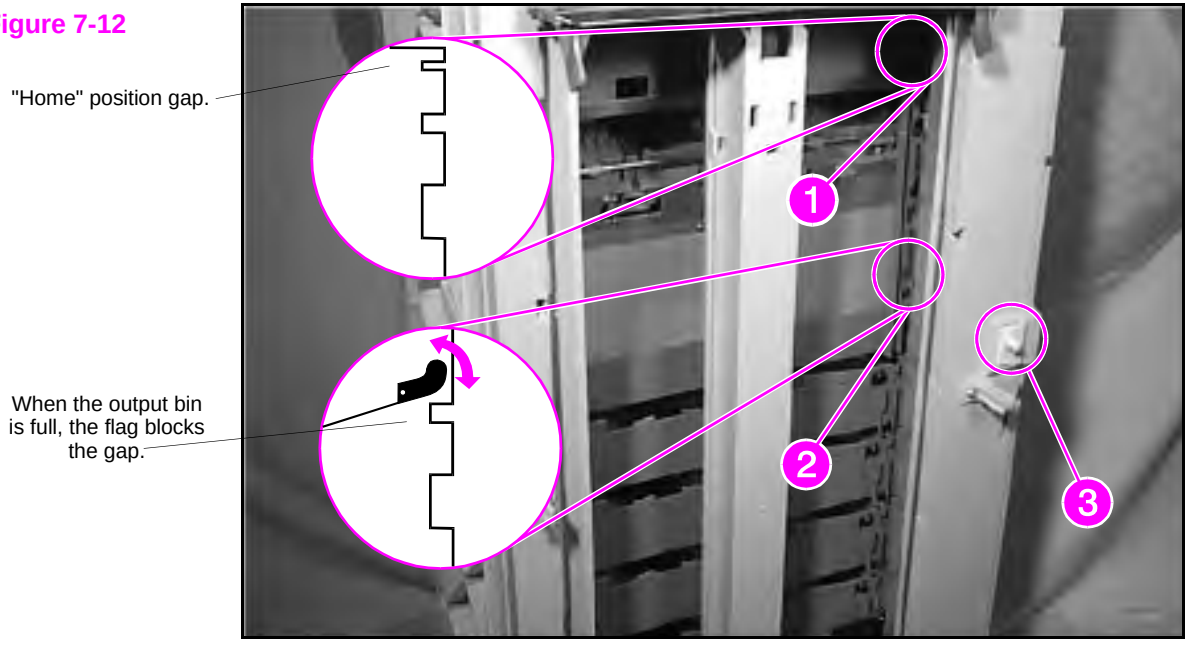
Message	Error Log Category/ Message	Description	Recommended Action
ACCESS DENIED	Status	After an attempt to select a locked-out function, this message displays for approximately 2 seconds.	The JetAdmin Administrator controls the control panel lockout feature. Request from the administrator to unlock function.
CANCELING JOB	Status	The printer is canceling the currently active job.	No action required. If message displays for over 5 minutes, cycle power. An extremely large print job with detailed graphics may take up to five minutes to cancel.
CLEAR JAMMED STAPLE	Attendance Required 13.10.03	Staples are jammed in the stapler. NOTE: Do Not Remove the flat wires (staples) that are in the path of the stapler. If they are removed, up to 12 documents may not be stapled.	To clear the jam, open the Stapler Top Cover Assembly by pressing the green tab with your thumb and pulling the green circular tab with your forefinger (refer to Figure 7-11). Remove loose or damaged staples from the stapler. Push the circular tab to snap it back into place. Close the Top Cover Assembly. NOTE: If any staples are removed while clearing a staple jam, up to 2 documents may not be stapled when printing resumes because the stapler must reload. Check the Staple Cartridge. Replace it as required. Replace the Stapler Top Cover. Replace the entire stapler as required.
CLEARING PAPER FROM THE PRINTER	Status	The printer is attempting to remove unusable paper. This may occur after you clear a paper jam.	No action required.
CLOSE PRINTER COVER	Attendance Required	One of the printer's doors or its cover is not latched or seated properly. Interlock switches are connected to each door and the cover. For the Top Cover and Fuser Door, close SW1. The Right Paper Path Door enables photosensor PS3 on the Pickup PCA of the Paper Input Unit (PIU).	Ensure the following are closed: Top Cover, Rear Fuser Access Door, and Right Paper Path Access Door (below Tray 1).
COPIES XX OF Y	Status	This message indicates the progress of the current job.	No action required.

Figure 7-11


NOTE: Do Not Remove the flat wires (staples) that are in the path of the stapler. If they are removed, up to 12 documents may not be stapled.

Clearing Staple Jams

Figure 7-12



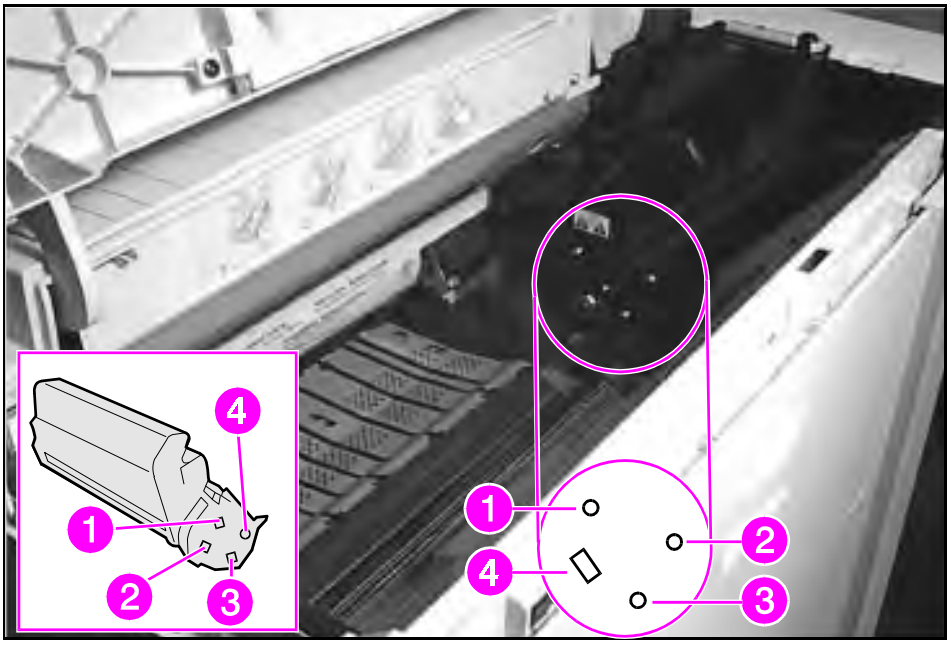
Scanbar and MBM Interlock Switch (SW1).

1 and 2 - Scanbar gaps. 3 - Multi-Bin Mailbox Interlock Switch

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
ENGINE TEST	Status	This message displays after the engine test button is pressed and indicates that the engine test is in process. If the test fails, an error or attendance message displays.	No action required. Refer to the Power On section for more information about performing an engine test.
FORMFEEDING (The [On Line] LED flashes.)	Status	A form feed is in process.	No action required. When the paper reaches the destination output bin, the [Ready] message displays and the [On Line] LED returns to a steady state.
HP MIO 1 INITIALIZING	Status	This message displays while the upper HP MIO card initializes. The printer supports I/O switching and remains online, but the channel is not active during initialization. NOTE: Since older MIO cards cannot remove the message, the printer will remove the message after a 5-minute timeout.	No action required. If the message displays after five minutes, a problem may exist in the network card, the network configuration, or with the host. For more information about the MIO card, refer to your network documentation.
HP MIO 2 INITIALIZING	Status	This message displays while the lower HP MIO card initializes. The printer supports I/O switching and remains online, but the channel is not active during initialization. NOTE: Since older MIO cards cannot remove the message, the printer will remove the message after a 5-minute timeout.	No action required. If the message displays after five minutes, a problem may exist in the network card, the network configuration, or with the host. For more information about the MIO card, refer to your network documentation.
HP MIO 1 NOT READY	Status	The upper MIO card is not ready. One of two situations may occur. First, the parallel port and the lower MIO card may continue to operate nominally. If the upper MIO card is operating correctly and communicating with the network, this message will disappear after approximately one minute. No action is required. Second, if the upper MIO card is unable to communicate with the network, this message will display for five minutes and then disappear. In this case, the printer is not communicating with the network, even though the message is no longer displayed.	The problem may be a bad MIO card, bad cable or connection on the network, or a network problem. For more information about the MIO card, refer to your network documentation. Verify that the product numbers for the MIO card is supported by printer.
MIO CARD NOT READY	Status 18.0.x (x=1 or 2 depending on which slot the card is in.)	Upon power up, the MIO cards perform a self test to complete initialization. Verify MIO card is HP.	Recommended action: no action needed. Allow time to initialize. If error continues, turn printer off and reseat or move to another MIO slot to test, verify cabling is not damaged or defective. If error follows MIO card, replace.

Figure 7-13



High-Voltage Power Supply Contacts

1. Primary Charging Roller Connector
2. Toner Registration/Toner Sensor
3. Developing Roller Bias Connector
4. Drum Ground Connector

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
HP MIO 2 NOT READY	Status	The lower MIO card is not ready. One of two situations may occur. First, the parallel port and the upper MIO card may continue to operate nominally. If the lower MIO card is operating correctly and communicating with the network, this message will disappear after approximately one minute. No action is required. Second, if the lower MIO card is unable to communicate with the network, this message will display for five minutes and then disappear. In this case, the printer is not communicating with the network, even though the message is no longer displayed.	The problem may be a bad MIO card, bad cable or connection on the network, or a network problem. For more information about the MIO card, refer to your network documentation. Verify that the product numbers for the MIO card is supported by printer.
INPUT DEVICE FEED PATH OPEN	Attendance Required	An external input device such as the 2000-Sheet Input Tray (Tray 4) is disrupting the paper path. The opening and closing of the Tray 4 Vertical Transfer Door should cause this message to be displayed (the closed door "blocks" PS35).	Check feed path, covers and doors on external input device(s). Check PS35 on the vertical transfer assembly.
INPUT OPERATION CONDITION xx.1y	Attendance Required	An external input device has a condition that needs to be corrected before printing can continue. See error log 13.17.11 -13.59.11	Check the indicated input device and correct the error condition. Cycle power and print PCL configuration pages to verify all devices are shown in printout. See Figure 7-5.
INPUT TRAY = ALL TRAYS	Status	The printer will pull paper from all available paper trays.	No action required.
INSTALL TONER CARTRIDGE	Attendance Required	The toner cartridge is missing or installed incorrectly. The print engine detects the presence of the toner cartridge by reading the voltage at the Toner Registration/Toner Sensor on the High-voltage Power Supply. For sensor location on the power supply, refer to Figure 7-13. The contact can be accessed from the right-hand side wall of the toner cartridge cavity in the printer.	Ensure the toner cartridge is seated properly, or install a new toner cartridge, ensuring it is seated properly. If the error persists: Check functionality of the toner cartridge and High-voltage Power Supply contacts (refer to Figure 7-13). Replace the toner cartridge. Replace the High-voltage Power Supply.
INTERNAL TEST	Status	The printer is executing a non-printing self test.	No action required. If this message displays for over three minutes, first cycle power. If this persists, verify that the Formatter connections are secure. Then remove all optional SIMMs and MIO(s).

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
LOAD TRAY X or LOAD ENV FEEDER *<media type> <paper size>*	Attendance Required	The printer received a request for a media type and size that is not currently installed in the printer.	Load the indicated tray with the correct media, or override the media type and size through the printer's Control Panel for that print job. Note: If paper is loaded when the printer is in POWER SAVE, it may not be recognized. Open and close the affected source when printer is in READY mode.
MANUAL FEED TRAY 1 *<media type> <paper size>*	Attendance Required	The printer received a request for a media type and size manually fed from Tray 1.	Load the correct media in Tray 1. If the correct media is already loaded, press [Online] so the printer will use that media. Note: If paper is loaded when the printer is in POWER SAVE, it may not be recognized. Open and close the affected source when printer is in READY mode.
MOPY XX OF Y from Tray n	Status	This message indicates the progress of the current job.	No action required.
OFFLINE	Status	The printer is offline and cannot receive data.	Press [Online] .
OUT OF STAPLES	Attendance Required	The staple cartridge is empty. Staples are detected by a photosensor and flag located beneath the staple cartridge access slot. Inserting a cartridge with staples pushes down this flag.	Replace the staple cartridge. NOTE: The stapler will retain some staples; do not remove them. Remove the cartridge. Verify that the flag beneath the staple cartridge slot moves freely. If it is damaged, replace the stapler's top cover. Replace the Stapler Assembly.
OUTPUT DEVICE DELIVERY PATH OPEN	Attendance Required	One of the printer's interlock switches is not set properly. This message displays for one of two reasons: 1. An external output device, such as the Multi-Bin Mailbox, is disrupting the paper path. Switch SW1, the interlock switch, is not depressed (callout 3, Figure 7-12). 2. The stapler's top cover is open. Two interlock switches detect whether the stapler's top cover is closed (refer to Figure 5-21).	Ensure the mailbox is installed tightly against the printer (especially at the top of the mailbox). Carpeting and/or uneven flooring may cause the top of the mailbox to move away from the printer, which causes this error to occur. Verify that Switch SW1 is working properly (callout 3, Figure 7-12). Close the stapler's top cover. The printer will reset. Verify that the switches in the stapling unit are correctly wired and functional. Perform continuity checks with the switches.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
OUTPUT OPERATION CONDITION x.yy	Attendance Required	An external output device has a condition that needs to be corrected before printing can resume. x = output device 0 = Paper Handling Controller 2 = Multi-Bin Mailbox 3 = Stapler yy = condition code For the Multi-Bin Mailbox: 01 = Face-Up bin not installed.	Cycle power and print PCL configuration pages to verify all devices are shown in printout. See Figure 7-5. Check the indicated output device and correct its condition. Check C-Link Cables for proper connection. For the Multi-Bin Mailbox/Mailbox with Stapler, ensure that the Face-Up Bin is properly installed.
PAPER DESTINATION = ALL BINS	Status	The printer will output paper to all available bins.	No action required.
PERFORM USER MAINTENANCE	Status	The printer requires a formal maintenance procedure.	Perform the required maintenance in accordance with chapter 4. Access the Configuration Menu, and select SERVICE MESSAGE=OFF.
PRESS SELECT TO CANCEL JOB	Status	This message displays to confirm that you canceled the currently active job.	Press [Select] to cancel a print job. This may take up to 5 minutes to cancel the print job. Press any other key to continue.
PRINTING CONFIGURATION PAGE	Status	This message displays while the printer prints the configuration pages.	No action required.
PRINTING DEMO PAGE	Status	This message displays while the printer prints a demo page.	No action required.
PRINTING DISK DIRECTORY	Status	This message displays while the printer prints an optional disk accessory directory.	No action required.
PRINTING ERROR LOG	Status	This message displays while the printer prints the error log.	No action required.
PRINTING FONT LIST	Status	This message displays while the printer prints a font list.	No action required.
PRINTING PAPER PATH TEST	Status	This message displays during a paper path test. This test can print 1, 10, 50, 100, or 500 pages.	No action required. To stop the test, access the JOB CONTROL menu, and select CANCEL JOB.
PROCESSING JOB FROM ENV FEEDER	Status	The printer is processing data from the active I/O channel. Some data is printed and some data cannot be printed, such as downloading fonts or macros. The media source is the Envelope Feeder.	No action required.

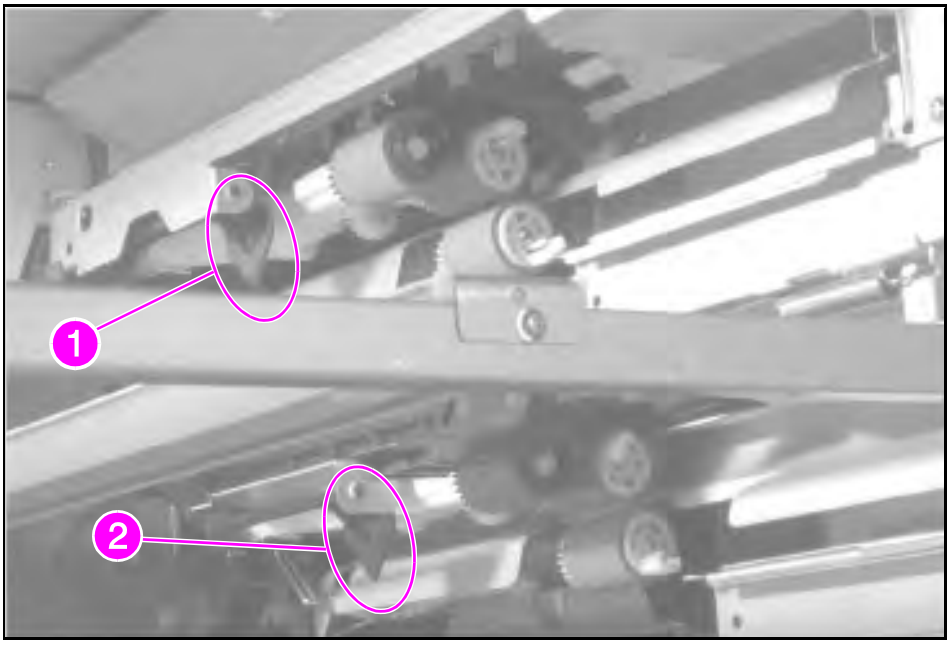
Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
PROCESSING JOB FROM TRAY x	Status	The printer is processing data from the active I/O channel. Some data is printed and some data cannot be printed, such as downloading fonts or macros. The media source is the indicated tray. x = tray number 1 = Tray 1 2 = Tray 2 3 = Tray 3 4 = 2000-Sheet Input Unit	If an incorrect tray is displayed, check the tray selected and the type settings. If printer does not respond after pressing the control panel keys, cycle power to clear the error. Note: If paper is loaded when the printer is in POWER SAVE, it may not be recognized. Open and close the affected source when printer is in READY mode.
READY	Status	This is the default message. The printer is ready to use.	No action required.
REMOVE PAPER FROM TOP OUTPUT BIN or REMOVE PAPER FROM OPTIONAL OUTPUT BIN n	Attendance Required	The destination output bin is full and the printer will not send anymore pages to that bin.	Remove the paper from the indicated output bin. For a mailbox with a stapler: Check the bin full actuator at the bottom of the stapler housing. Replace as required. Check the stapling bed and cables. Replace as required. The stapling bed includes cables. Replace the entire stapler.
RESTORING FACTORY SETTINGS	Status	This message displays during a COLD RESET. All printing environment parameters, personality and device defaults return to their factory default settings. When it is completed, the printer displays [On Line] or [Ready].	No action required.
SELECT LANGUAGE	Status	This message displays after pressing and holding [Select] while powering on the printer.	Press [+] to scroll through the available languages. Press [Select] to activate the displayed language.
SERVICE MODE	Status	This message displays after accessing the Service Mode.	To display the Service Mode menus, press [Item]. Press [Online] to exit the Service Mode. For more information about the Service Mode, refer to Chapter 3.
SKIP DISK LOAD	Status	This message displays for approximately one second after powering on the printer while pressing and holding [Menu]. Indicates that the disk-based system execution is disabled. The printer continues its normal initialization process.	To reset the printer, cycle power, and do not press and hold [Menu].
STAPLER ALIGN ERROR	Attendance Required	The paper is misaligned in the stapler and cannot be stapled.	Remove the paper from the stapler and resend the job. Check for paper in the actuator near the stapler bed. Replace the stapler.

Table 7-5 Printer Control Panel Messages (continued)

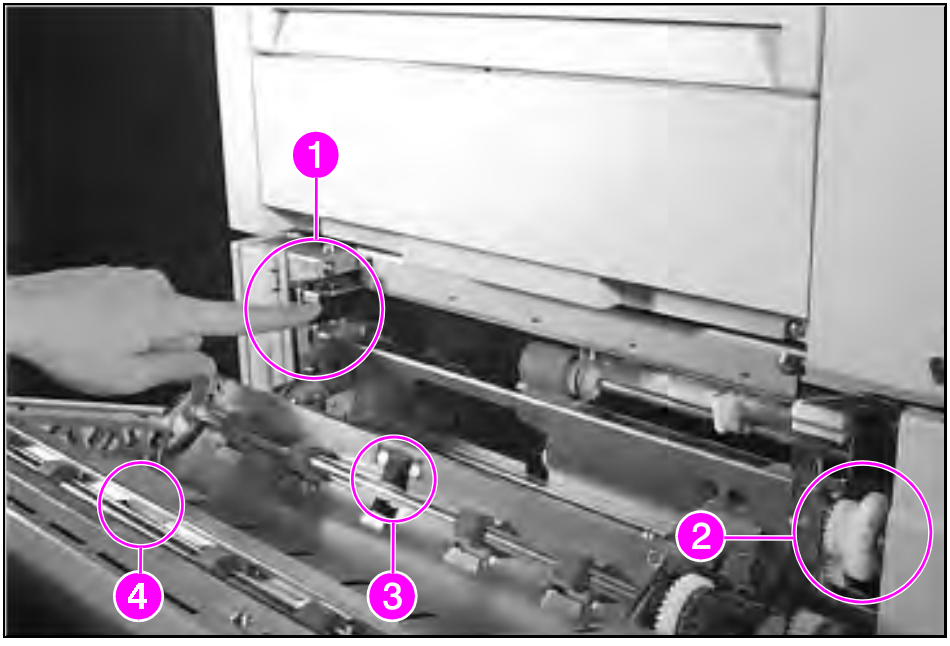
Message	Error Log Category/ Message	Description	Recommended Action
STAPLER LIMIT REACHED	Attendance Required	The stapler has reached its maximum of 20 sheets to be stapled.	Remove the 20 sheets from the bin. The printer will automatically continue and staple the remaining pages separately.
TONER LOW	Attendance Required	The toner cartridge is running out of toner. NOTE: Check the Configuration Menu. If TONER LOW=CONT, the printer will continue printing; but if TONER LOW=STOP displays, the printer will stop printing and go off line.	Shake the toner cartridge or replace it. If TONER LOW remains displayed and no other conditions are present, printing will automatically continue, but the print quality will gradually degrade. If the message persists: check the contact points on the left end of the toner cartridge and inside the toner cartridge cavity (refer to Figure 7-13) and replace the toner cartridge. Replace the High Voltage PCA.
TRAY n EMPTY	Status	The paper tray is empty. Paper is sensed in the tray by triangular-shaped, black plastic flags and photosensors. If paper is not in a tray, the flags will rotate through an access in the paper tray. When paper is present, the flags are blocked from rotating through this access.	The printer will still function. Load paper, if desired. If the message is intermittent or persists with paper in the tray: Ensure the black triangular-shaped paper out flag is not stuck in the down position by rough media. Do this before opening the tray. To check this flag without opening Tray 2, remove the Duplexer if it is present. Open the Front Access Door (refer to Figure 1-2). This provides you with a clear view of the Tray 2 paper out sensor flag (refer to Figure 7-14).To check this flag without opening Tray 3, use a flashlight to observe the paper out flag. If either paper flag is damaged, replace the paper flag or replace the paper input unit. If the printer is using Tray 2 or 3 and the message is accompanied by a clicking noise every few seconds, replace the Paper Input Assembly.

Figure 7-14



Tray 2 (1) and Tray 3 (2) Paper Out Flags

Figure 7-15



Vertical Transfer Door Closed Sensor (PS35)

(1.) PS35 Vertical Transfer Door Switch (2.) Drive Gear (3.) Vertical Transfer Door Registration Sensor Flag PS31 (4.) Vertical Transfer Door Paper Jam Sensor Flag PS32

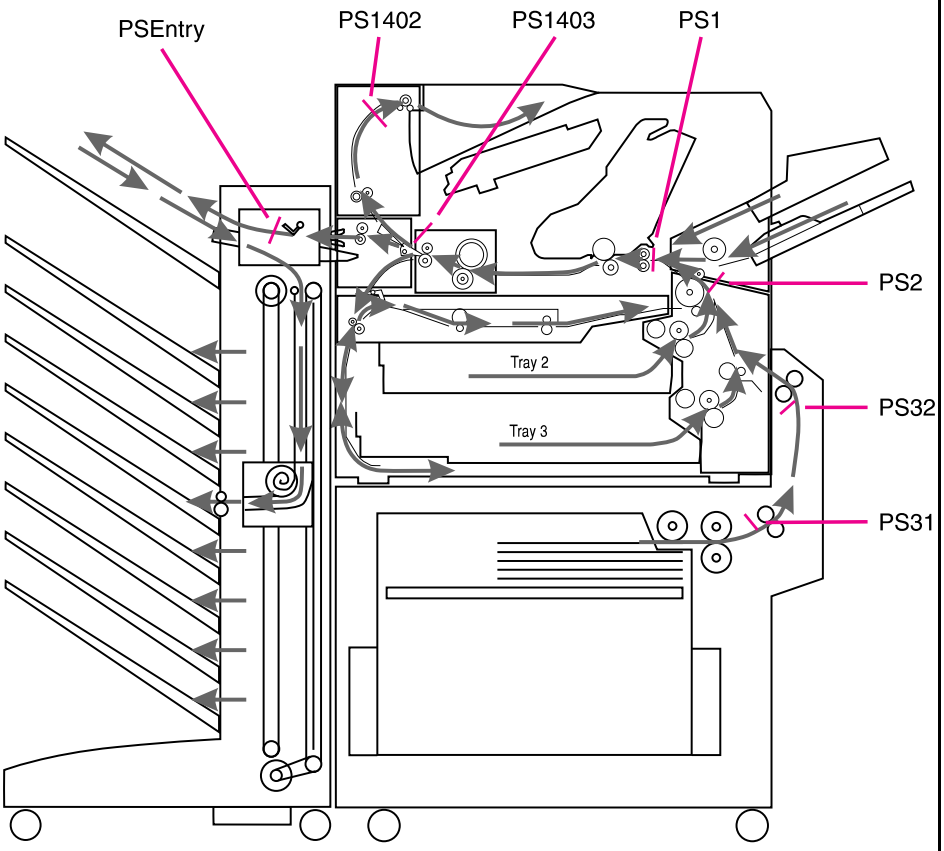
Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
TRAY 4 EMPTY	Status	Tray 4 is empty or not lifting. Under normal operating conditions, when Tray 4 is closed the paper stack lifts until the paper is directly beneath Tray 4's feed rollers. Photosensor flag PS34, the paper surface photosensor, determines when the paper stack is lifted to its feed position. Mechanically, Tray 4 lifts when the tray is closed. When closed, a drive gear on Tray 4 engages with the drive mechanism located on the back-side of the 2000-Sheet Input Unit. A pilot locating pin and bushing are present to ensure that the gear from Tray 4 and the drive motor gear assembly engage properly. Once engaged, the rotating gears use a cable lift mechanism to lift Tray 4's paper stack. Tray 4 is not lifting and/or makes abnormal noises. Tray 4 is partially lifting or not lifting at all because paper loaded on the left side of the tray is blocking upward movement. Microswitch SW31 is defective or disconnected (callout 2, Figure 7-23).	Verify the 2000-Sheet Input Tray is present under the Paper Handling Options of the PCL configuration pages. To watch Tray 4 lift, Open the transfer door. Open and close Tray 4. With the transfer door open, defeat the transfer door closed photosensor (PS35) by pushing in on the sensor flag (callout 1, Figure 7-15). See if Tray 4 is lifting. The white drive gear on the right-hand side of the transfer door should be rotating. If it is not rotating, verify the cable connections between Main Motor (M1), the Tray 4 Controller PCA, and the Tray 4 Power Supply (refer to Figure 6-58, callout 1 and Figure 6-56, callout 1). Verify the lift cables are not broken (refer to Figure 7-24). Replace only the 2000-Sheet Input Tray Assembly if the lift cables are broken. Tray 4 is not seated into the gear when lifting. Check the white bushing on Tray 4, which is located on a steel locating pin. If the bushing is cracked or broken, replace the bushing, and replace the gear assembly. Remove any paper from the left side of Tray 4. Replace the paper surface sensing switch (SW31) located at the center top of the 2000-Sheet Input Unit (callout 2, Figure 7-23).
TRAY n OPEN TRAY 4 OPEN	Status Status	The indicated paper tray is open. Tray 4 Open message may occur if the paper size Adjustable Back Plate is missing or not seated properly.	The printer will still function. Close the tray if desired. Reseat or replace adjustable plate.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
WARMING UP	Status	The Fuser is warming up and the printer is not ready. It may be necessary to display the error log to determine if more information is available to assist you in troubleshooting.	Wait until the printer signals ready to accept data. The user may access the menus before the printer goes online. If this message remains displayed, separate all accessories from the printer. Cycle power and recheck messages. If no error, replace accessories one at a time. Recycle power. If message persists, replace the Formatter. Replace the DC Controller. Replace the Power Supply.

Figure 7-16



PS31 Tray 4, Transfer Door Registration Photsensor
PS32 Tray 4, Transfer Door Paper Jam Photosensor
PS2 Paper Input Unit Paper Jam Photosensor
PS1 Registration Assembly Photosensor
PS1403 Fusing Exit Photosensor
PS1402 Face Down Delivery Paper Jam Photosensor.
PS Entry Flipper Assembly of Multi-Bin Mailbox

Sensor Flag Locations Along the Paper Path

General Paper Path Troubleshooting

Paper jams occur in the printer when paper does not either reach or clear a photosensor along the printer's paper path in a specific amount of time. If a paper jam occurs, a "13.xx PAPER JAM" message is displayed on the printer's Control Panel. The following lists general questions you should ask and topics you should explore prior to troubleshooting:

General Paper Path Troubleshooting Questions

Problem	Action
What is the frequency of the paper jams (e.g. continuous, one jam per 100 pages, one jam per 1000 pages, etc. . .)?	Verify with customer. Print or Show Error Log to determine paper jam history. See the Display and Error Log Sections of this Chapter and evaluate error log.
Do paper jams only occur when the paper is fed from a particular paper input source (e.g., Tray 1, Tray 2, Tray 3, Tray 4 or Envelope Feeder)?	See Verification Section of this chapter and use Paper Path Test to isolate problem.
Do jams only occur when paper is output to a specific output bin (e.g., face-down output bin, face-up bin, mailbox bin, duplex operation, stapler)?	See Verification Section of this chapter and use Paper Path Test to isolate problem. **Note:** Multi-Bin Mailbox and Stapler are not supported with the HP LaserJet 5Si HM (C3124A).
Do paper jams occur with a specific type of media?	Try known good media. See the HP LaserJet Printer Family Paper Specifications Guide. Note that the guide is bundled with the Service Manual.
Where does the leading edge of the first sheet of paper in the printer's paper path stop when a jam occurs? Are any sheets of paper physically damaged or torn?	Attempt to duplicate. See Verification Section of this chapter and use Paper Path Test. Inspect the paper path and all paper path mechanical assemblies prior to the leading paper jam.
Is the customer loading the paper trays correctly?	Observe customer loading paper. Do not fan paper. Refer to proper paper handling procedures in the Paper Specification Guide.
Is the customer overfilling the paper trays?	Ensure paper is NOT over the maximum fill marks in the paper trays. Observe customer loading paper in trays.
Are the paper tray guides set correctly?	Ensure Tray 2 and 3 left-side paper fence is set correctly at both the front and rear of the tray; and that the front fence is locked into the correct position. For Tray 4 ensure all adjustments are set correctly: front, back, and side at the top and bottom of the tray.
Does the printer need cleaning?	Inspect paper path and paper path rollers. Refer to cleaning procedures in Chapter 4.
When was the User Maintenance performed on the printer?	Determine from PCL Configuration Page the number of pages since the last maintenance (refer to Figure 7-5). The User Maintenance Kit should be installed every 350,000 images (250,000 images with HP LaserJet 5Si Heavy Media printers) by the customer.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
13.0 PAPER JAM CLEAR PRINTER	Attendance Required	Paper is jammed somewhere in the paper path, or a sensor flag may be stuck, causing a false paper jam warning. The jam was detected immediately after a power cycle. See Figure 7-13 for sensor flag locations.	Refer to the General Paper Path Troubleshooting.
13.x PAPER JAM CLEAR n PAGES < OR > 13.xx PAPER JAM CLEAR n PAGES	Attendance Required	Paper is jammed in the specified Paper Handling Device. Troubleshoot the Error Log message (either Show or Print the Error Log). n = number of pages inside the print mechanism x = cause of Jam (e.g., "13.3 PAPER JAM" would indicate a jam in the Fuser Assembly)	Remove jammed paper (see Clearing Paper Jams in the User's Manual). Troubleshooting Hints Refer to the General Paper Path Troubleshooting. Verify movement is not hindered in any of the Paper Jam sensor flags (see Figure 7-13). PS31 (in the Transfer Door) PS32 (in the Transfer Door) PS2 (at the paper input slot) PS1 (at the Registration Assembly) PS1403 (Fusing Exit) PS1402 (Face Down Delivery) PSEntry (Flipper Assembly of Multi-Bin MailBox) Use the Paper Path Test to isolate the specific paper path if possible (e.g., Tray 1, Tray 2, Tray 3, Tray 4 or the Duplex paper path). To view the Tray 3 paper path, remove Tray 2 and view pickup rollers through the tray 2 cavity. To view the Tray 2 paper path, remove the duplex option if installed, and view the Tray 2 pickup rollers through the Front Duplex Paper Jam access door. For Tray 1, view pickup roller at Tray 1. For Tray 4, override the Transfer Door interlock (PS35, refer to Figure 7-12) and watch the pickup roller as paper is being fed. The Duplex paper path can be viewed by removing Tray 3 and opening the Front Duplex Paper Jam access door.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
13.x PAPER JAM (Continued)		**Printer Engine Specific Paper Jams**	
13.0	13.0n.00	0 = Non Specific paper jam.	
13.1	13.0n.01	1 = PAPER FEED 1 PAPER LATE JAM (Paper late arriving at PS2)	PS2 is located in the Paper Pickup Unit (refer to Figure 7-16). Inspect paper path. Verify flag movement by manually inserting sheet of paper into slot beneath right side paper path access door and listening for flag movement.
13.2	13.0n.02	2 = PAPER FEED 2 PAPER LATE JAM (Paper late arriving at PS1)	PS1 is the Registration photosensor (refer to Figure 7-15). Remove the toner cartridge and lift up on green lever to access sensor flag. Verify flag movement.
13.3	13.0n.03	3 = FUSER OUTPUT PAPER LATE JAM (Paper late arriving at PS1403)	PS1403 is located in the Fusing Assembly (refer to Figure 7-16). Remove Toner Cartridge and the Fuser Access Door and inspect paper path. Verify photosensor flag in the Fusing Assembly moves freely.
13.4	13.0n.04	4 = FUSER OUTPUT PAPER STOPPED JAM	
13.5	13.0n.05	5 = FACE DOWN OUTPUT PAPER LATE JAM	PS1402, the face-down delivery photosensor is located on the Face-Down Delivery assembly (refer to Figure 7-15). Inspect Diverter Drive Assembly, located on the access door to the Fusing Assembly and the Face Down Delivery Assembly. Verify paper path from the Fusing Assembly to the top Face Down Bin is clear and all sensor flags move freely.
13.6	13.0n.06	6 = FACE DOWN OUTPUT PAPER STOPPED JAM	

Message	Error Log Category/ Message	Description	Recommended Action
13.x PAPER JAM (Continued) 13.7 13.8 13.9 13.9n 13.10	 13.0n.07 13.0n.08 13.0n.09 13.0n.10	**Duplex Module Paper Jams** 7 = 2-SIDED TURNAROUND PAPER LATE JAM 8 = 2-SIDED TURNAROUND PAPER STOPPED JAM 9 = 2-SIDED PATH PAPER LATE JAM 10 = 2-SIDED PATH PAPER STOPPED JAM	Paper Jam message 13.7 through 13.10 involve paper jams related to the Duplex Module. Paper is diverted into the Duplex module after leaving the Fusing Assembly. The paper is then "turned around and re-fed into printer's paper path (refer to Figure 7-16). To view a duplex print operation, remove Tray 3 and initiate a duplex print job from the printer's Control Panel; you should be able to observe the trailing edge of the paper being turned around in the Tray 3 paper cavity. For duplex print problems, first re-seat the module. If problems persist, replace the complete Duplex Assembly. The Fusing Assembly and Diverter Assembly may also cause duplex printing problems. Verify their operation.
13.x PAPER JAM (Continued) 13.11	 13.17.11 through 13.59.11	**2000 Sheet Input Tray Paper Jams** 11 = 2000 Sheet High Capacity Input related Paper Jam messages. Several of these message are further explained later in this reference table.	This group of errors is related to the first device on in the C-Link daisy chain (see Figure 7-7); in the supported configuration this should be the 2000 Sheet High Capacity Tray. The known individual error log messages are documented in this Reference Table in numerical order; refer to the error log column of this table.
13.x PAPER JAM (Continued) 13.12	 13.01.12 through 13.08.82	**Multi-Bin MailBox Paper Jams** 12 = Multi-Bin MailBox / MailBox with Stapler Paper Jam.	This group of errors are related to the second device on in the C-Link daisy chain (see Figure 7-6); in the supported configuration this should be the Multi-Bin MailBox. The known individual error log messages are documened in this Reference Table in numerical order, refer to the error log column of this table.

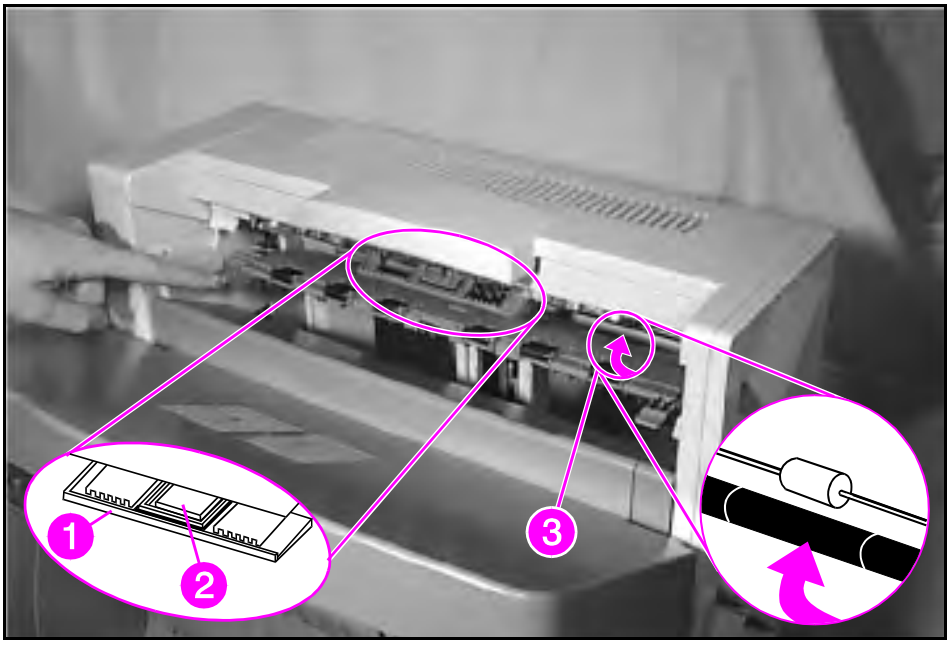
Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
13.x PAPER JAM (Continued)	13.10.03 through 13.13.03	**Stapler Assembly Errors**	This group of errors are related to the third device on in the C-Link daisy chain (see Figure 7-6); in the supported configuration this should be the Staple Assembly . The known individual error log messages are documened in this Reference Table in numerical order, refer to the errorlog column of this table.
13.13		13 = FUSER ACCORDION JAM	Fusing Assembly related paper jams. Inspect paper path before and after the Fusing Assembly.
13.14		14 = PRINTER COULD NOT AUTO EJECT PAPER	Inspect entire paper path for paper or debris (refer to Figure 7-16).
13.11 PAPER JAM	Error Message 13.17.11	A paper jam occurred at the Vertical Transfer Assembly entrance. Paper did not reach entry sensor (PS31) on time. If the feed rollers are not working properly, the paper will not advance or it will arrive at sensor PS32 late (see Figure 7-14).	Verify that PS31 and PS32 sensor flags are not blocked and that the sensors are free of dust and debris. Using the Paper Path Test, initiate a print job using Tray 4 as the paper input source. Open the Transfer Door, then override PS35 (refer to Figure 7-15). Ensure the feed rollers are advancing paper. If the rollers do not rotate, verify that the following Tray 4 connectors are secure: Main Drive Assembly (callout 1 in Figure 6-56), Pickup Assembly (callouts 2 and 3 in Figure 6-59), Controller PCA (callout 1 in Figure 6-58), Power Supply (callout 1 in Figure 6-61). If the problem persists, replace the Tray 4 Pickup Assembly. If the rollers drop down and rotate but do not advance the paper, replace the feed rollers. NOTE: The customer replaces the feed rollers during 350K User Maintenance (250K images with HP LaserJet 5Si Heavy Media printers). Replace the Paper Pickup Assembly.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
13.11 PAPER JAM	Error Message 13.27.11	A paper jam occurred at the Vertical Transfer Assembly. Paper did not reach exit sensor (PS32) on time (see Figure 7-14).	See all recommendations listed for Error Log Message 13.17.11, and follow these steps: Check the brass washer on outboard side of Vertical Transfer Door registration clutch is present and that the registration clutch does not move more than 2mm from side-to-side. Clean PS32 and the Vertical Transfer Assembly rollers. Replace the Vertical Transfer Assembly.
13.11 PAPER JAM	Error Message 13.33.11	A paper jam occurred at the Vertical Transfer Assembly entrance. Paper stays in PS31 longer than expected (see Figure 7-15).	See all recommendations listed for Error Log Message 13.27.11.
13.11 PAPER JAM	Error Message 13.43.11	A paper jam occurred at the Vertical Transfer Assembly exit. Paper stays in PS32 longer than expected (see Figure 7-15).	See all recommendations listed for Error Log Message 13.27.11.
13.11 PAPER JAM	Error Message 13.49.11	A paper jam occurred at the Vertical Transfer Assembly entrance while powering on the printer or after opening the Vertical Transfer Assembly. Paper in PS31 at power-on. See Figure 7-15.	See all recommendations listed for Error Log Message 13.27.11.

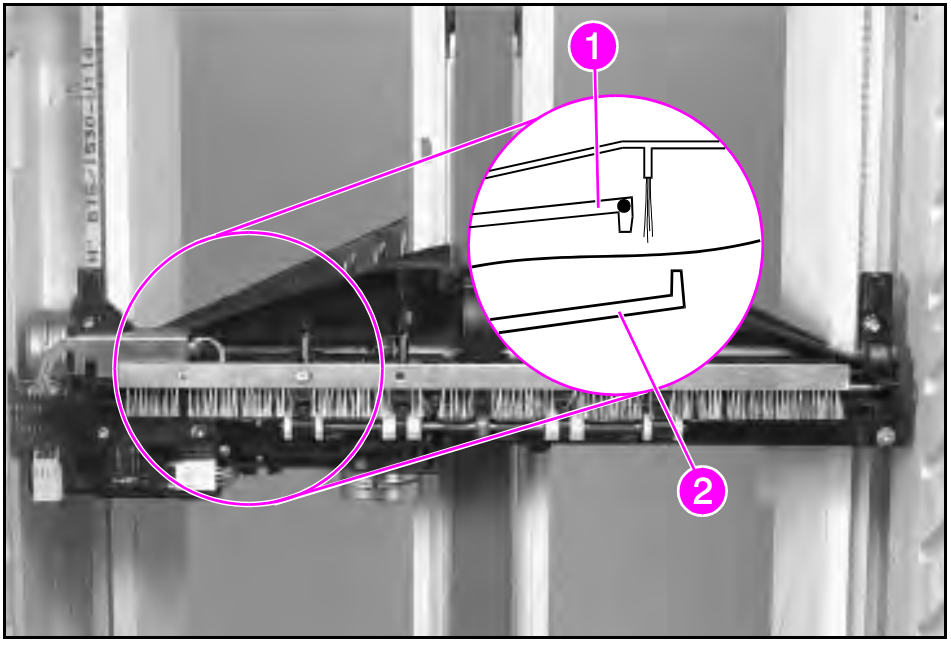
Figure 7-17



Flipper Assembly and Paper Sensor Flags (Multi-Bin Mailbox)

1. PS Face Up 2. PS Face Up Full 3. PS Entry Sensor

Figure 7-18



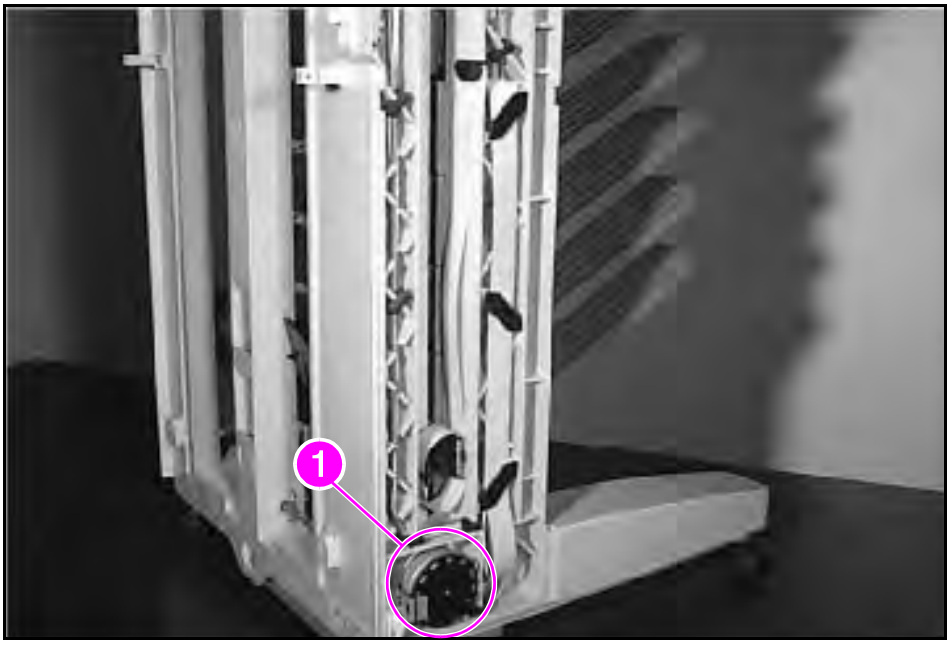
Paper Sensor Exit

1. PSExit1 - Detects paper entering head assembly.
2. PSExit2 - Detects paper exiting head assembly.

Table 7-5 Printer Control Panel Messages (continued)

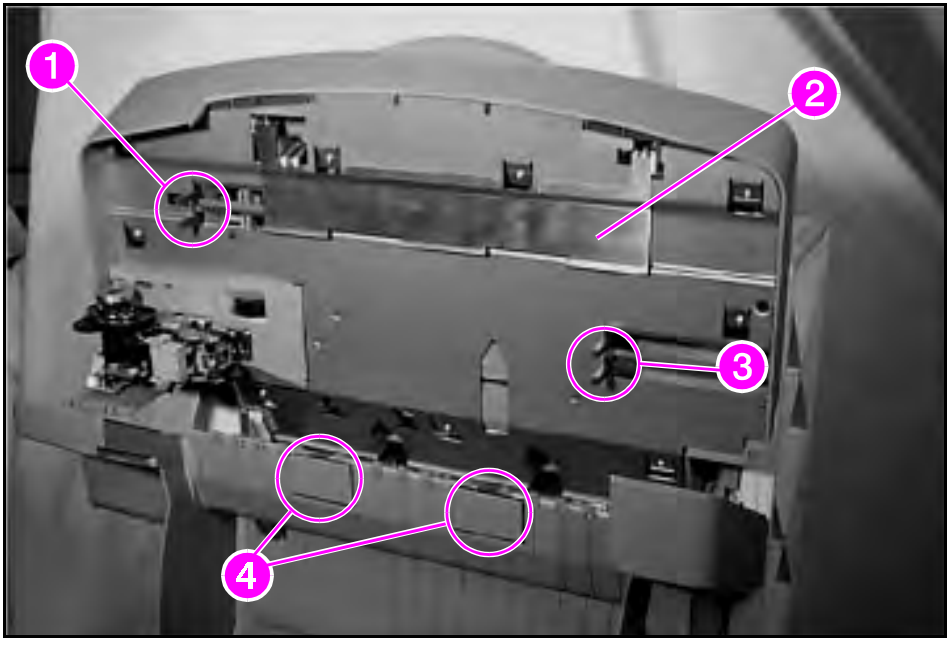
Message	Error Log Category/ Message	Description	Recommended Action
13.11 PAPER JAM	Error Message 13.59.11	A paper jam occurred at Vertical Transfer Assembly exit or after opening the Vertical Transfer Assembly. Paper in PS32 (see Figure 7-14) at power-on (flush routine not implemented at power-on). If Error Log Message 13.59.1y is followed by 66.00.19 or 66.00.20 in the printer's error log, this means the printer was printing a long job and a time-out occurred.	See all recommendations listed for Error Log Message 13.27.11, and follow these steps: Cycle power to clear the error. Replace vertical transfer door assembly.
13.12 PAPER JAM	Error Message 13.01.12	A paper jam occurred at the Flipper Assembly's input (refer to Figure 7-17). The flipper assembly is located in the upper portion of the Multi-Bin Mailbox; the assembly receives paper from the printer via the Input Paper Guide and directs paper into either the face-up bin or into the transport belt of the mailbox. PSEntry detects paper entering the Flipper Assembly. NOTE: Power off the printer. Position the mailbox away from the print engine. Hold down the mailbox interlock (refer to Figure 7-12, callout 3). Then power on the printer. The mailbox goes through its normal power-on sequence (the head assembly in the mailbox moves to the bottom-most position on the mailbox, then travels up to its home position). Any fault condition in the mailbox prevents it from going through its normal power-on, full down and up sequence.	Clear the paper jam: Ensure the Multi-Bin Mailbox is seated adjacent to the printer, and the mailbox input paper guide fits snugly into the print engine. Both devices should sit on level, sturdy surfaces. Check the PSEntry photosensor flag by opening the paper access flap at the rear of the flipper assembly (refer to Figure 7-17). Slide a piece of paper through the paper input slot. While sliding the paper through the slot, see if the black page width flag moves up and down easily. If the flag's movement is hindered, remove the obstruction or replace the mailbox assembly. Under normal operating conditions, if you were to hold this flag up, to its top-most position, and then power-on the printer, the printer displays 13.12 PAPER JAM (Error Log Message 13.01.12).
13.12 PAPER JAM	Error Message 13.02.22	A paper jam occurred at the Face-Up Bin (output of the Flipper Assembly). The Flipper Assembly, located in the upper portion of the Multi-Bin Mailbox, receives paper from the printer via the Input Paper Assembly (refer to Figure 7-20). The assembly directs paper to either the Face-Up Bin or to the mailbox's transport belt. PSFaceUp sensor flag detects paper as the paper moves from the Flipper Assembly into the Face-Up Bin (refer to Figure 7-17).	Clear the paper jam by verifying that the sensor flag is free moving (refer to Figure 7-17). Remove any obstructions. Replace the Multi-Bin Mailbox if it is broken or interferes with the flag's movement. Under normal operating conditions, if you were to hold this flag up, to its top-most position, and then power-on the printer, the printer displays 13.12 PAPER JAM (Error Log Message 13.02.22).

Figure 7-19



Mailbox Motor and Encoder Disk (callout 1)

Figure 7-20



Stapler Unit

1. Offset Pusher
2. Exit Flap
3. Registration Pusher
4. Slider Arms

Message	Error Log Category/ Message	Description	Recommended Action
13.12 PAPER JAM	Error Message 13.03.32	A paper jam occurred along the Transport Belt. When the paper's final destination is either the stapler or one of the mailboxes, paper moves from the Flipper Assembly to the Transport Belt. Magnetic attraction holds the paper between the transport belt and a magnetic strip affixed to the moving head assembly. See Figure 7-22.	Clear the paper jam by following these steps: Inspect the Metallic Tape; remove any obstructions that may be in its path. Remove the left side cover of the MailBox. Verify that the Encoder Disc is securely mounted to the Transport Motor shaft and the Encoder photosensor is positioned correctly to read the segmented encoder disc (see Figure 7-19). If the error persists, replace the Multi-Bin MailBox.
13.12 PAPER JAM	Error Message 13.04.42 13.05.52	A paper jam occurred in the delivery head. The delivery head receives paper as it moves down the Transport Belt. The delivery head delivers paper to either the designated mailbox slot or to the stapling assembly. The PSExit 1 photosensor flag detects paper as it enters the delivery head (refer to Figure 7-18). Once paper is sensed, the eject motor rotates and moves paper to the bin. The PSExit 2 photosensor flag detects the paper's trailing edge as it moves from the head assembly into the designated bin (refer to Figure 7-18).	Clear the paper jam: Inspect the delivery head from the output side of the mailbox. (It may be necessary to remove the stapling assembly and/or some of the mailbox slots. Refer to Figure 7-18.) Verify that PSExit 1 and PSExit 2 sensor flags can move freely. The PSExit1 flag should rotate towards the output bins, and the PSExit 2 flag should move up and down. Remove any obstructions. If flag moves normally, but the error still persists, replace the mailbox assembly.
13.12 PAPER JAM	Error Message 13.06.62	A paper jam occurred on the delivery head (while scanning for bins). During power-on, the Multi-Bin Mailbox and the delivery head travels the length of the mailbox verifying that all bins (and the stapler) are installed. This is performed when the PS Bin Full/Head Position photosensor, located in the delivery head assembly, reads a "scan bar". The scan bar is formed by plastic protrusions located on the rear surface of each bin and the stapling assembly (refer to Figure 7-12). When all the bins are in place, one continuous scan bar is formed.	Clear the paper jam: Roll the mailbox assembly away from the printer to inspect the front of the mailbox. Determine if one continuous scan bar is present (refer to Figure 7-12). Each bin, and the stapler assembly, if installed, MUST be in place to form a continuous scanbar. Ensure the Stapler Assembly is firmly seated on to the mailbox, and ensure all mailbox trays are in place. With the 8-bin mailbox, ensure the blind cover and all bins are installed and not broken. Remove the mailbox assembly's left-side cover. Verify the flat ribbon cable that connects the delivery head to the mailbox 's controller PCA is not damaged and/or is connected. If the problem persists, replace the Multi-Bin Mailbox.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
13.12 PAPER JAM	Error Message 13.07.72	A paper jam occurred in the input guide. The input guide is located at theentry and accepts paper from the printer. It guides the paper into the Flipper Assembly on the Multi-Bin Mailbox (refer to Figure 7-17). PSEntry in the Flipper Assembly of the mailbox detects paper entering the paper from the paper input guide.	Clear the paper jam by performing the procedures recommended for Error Log Message 13.01.12.
13.12 PAPER JAM	Error Message 13.08.82	The paper stopped moving because there is an error in the printer but not in the mailbox.	Clear the paper jam. Cycle power. To view a history of error messages related to the mailbox, print or view the error log. Perform the paper path test to verify that the mailbox is functioning properly. Perform the power-up sequence recommended for error log message "13.01.12." Verify that the scanbar is complete and that all photosensor flags are free to move (see Figure 7-12). If the message persists after performing all the preceding checks, replace the mailbox assembly.
13.12 PAPER JAM	Error Message 13.11.03	A pusher jam occurred. Two sets of pusher arms are located within the stapler assembly: the offset pusher and the registration pusher (refer to Figure 7-20). As viewed from the rear, the registration pusher arms apply slight pressure against the right edge of the paper, registering the paper against the left side wall of the stapling bed. Registration is necessary to ensure that all paper in the stapling bed is “square" prior to stapling. The rack motor and PS Rack photosensor control the motion of the pusher arms (refer to Figure 5-21). Power-on sequence: the following stapler mechanisms are exercised and returned to their starting positions (refer to Figure 7-20): registration pusher, offset pusher, exit flap retainer arms, and slider arms.	Clear any paper from the stapling bed: Open the top cover assembly. Inspect the offset and registration pusher arms. Verify that nothing interferes with their movement. You should be able to easily slide the arms back and forth with a slight amount of resistance. Remove any obstruction(s). Cycle power. See if the printer completes its power-on sequence. Check the top cover assembly pushers and cables. If the pushers are stuck or the cables are damaged, replace the entire assembly. The top cover assembly includes the cables. Replace the entire stapling unit as required.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
13.12 PAPER JAM	Error Message 13.12.03	A slider jam occurred. The slider arms are stuck or something is interfering with their movement (refer to Figure 7-20). Two slider arms hold the rear edge of the paper stack in position during the stapling process. The sliders help remove paper from the stapling bed during the eject cycle. During the power-on sequence, the motion of the sliders is highly visible since they extend and return to their start position. Motor "M3" and the PSSlider photosensor control the motion of the slider arms (refer to Figure 5-21).	To remove the paper on the stapling bed: Cycle power. See if the stapler completes its power-on sequence (see Error Log Message 13.11.03). Determine if the wire bail on the stapler's output paper path is not installed upside down. The stapler's sliders should not hit the bail. Check the stapling bed assembly, which includes the sliders and cables. If the sliders are stuck or the cables are damaged, replace the entire stapler.
13.12 PAPER JAM	Error Message 13.13.03	A retainer jam occurred. The retainer is a rotating shaft containing two flexible rubber fingers and is located in the front upper portion of the stapling assembly. The retainer fingers rotate up as the stapling bed receives paper from the head assembly of the Multi-Bin Mailbox. Once paper is in the stapling bed, the retainer arms rotate counterclockwise to hold the back edge of the paper against the rear wall of the stapling bed. This action, along with the registration pusher, correctly aligns the paper prior to stapling.	To clear the retainer jam: Remove the stapling assembly. Inspect the retainer fingers to determine if anything is preventing them from rotating. Remove any obstructions that may be present. Remove the stapling assembly's back plate (refer to Figures 6-88 and 6-89). Verify that the Retainer Motor connect is connected to the Control PCA (refer to callout 2 on Figure 6-91). If all connections are secure on the Control PCA, yet the retainer fingers are still "stuck," replace the stapling assembly.
20 MEMORY OVERFLOW DATA LOST	Error Message	The printer received more data from the computer than can fit in its available user memory. Only the data currently in the available memory will be printed. Some data may be lost.	Press [Select] to continue. To increase memory, remove some fonts, macros, or any other data from memory; or, simplify the page sent to the printer; or, install additional memory. NOTE: The printer will automatically resume printing after this error occurs if AUTO CONTINUE=ON is set.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
21 PRINT OVERRUN DATA LOST	Error Message	The data (dense text, rules, raster or vector graphics) sent to the printer was too complex.	Press [Select] to resume printing. If AUTO CONTINUE=ON, the printer will stop printing, display the error for 10 seconds, then clear the error, and resume printing. Some data loss may occur. Try to simplify the print job. If you must print the job as is, set PAGEPROTECT=ON from the Configuration Menu. Then print the job. Reset PAGEPROTECT=AUTO, otherwise the printer's performance will degrade.
22 PARALLEL IO ERROR CHECK SETUP	Error Message 22.00.00	An I/O buffer overrun error. For parallel (PAR) configurations, the computer and printer are not communicating because of improper signal protocols.	Press [Select] to clear the error message. Data will be lost. If the error continues: check for loose cables and use a high-quality cable (HP C2951A or equivalent). NOTE: Some non-HP parallel cables may be missing pin connections necessary for bi-directional communications. If the printer is using an I/O other than the HP supplied I/O, refer to the manual for that device.
22 HP MIO 1 IO ERROR CHECK SETUP	Error Message 22.01.00	The upper slot HP MIO buffer has overflowed.	Press [Select] to continue. Data will be lost. Pressing [Select] will cancel the current print job at the upper port. If a non-HP MIO device is installed, refer to the manual for that device.
22 HP MIO 2 IO ERROR CHECK SETUP	22.02.00	The lower slot HP MIO buffer has overflowed.	Press [Select] to continue. Data will be lost. Pressing [Select] will cancel the current print job at the lower port. If a non-HP MIO device is installed, refer to the manual for that device.
30.1.1 DISK FAILURE 30.1.2 FAILURE	Error Message 30.01.1 30.01.2	An optional disk accessory has failed its self-test. This error is saved in the error log.	Press [Select] to continue. Inspect the cable connector for the disk drive. Replace the disk cable assembly. Replace the disk assembly. Replace the Formatter. Test the disc by selecting PRINT DISC DIRECTORY from the test on the control panel.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
31.1.1 DISK NOT INITIALIZED	Error Message 31.01.01	An optional disk accessory is not properly initialized. If the proper initialization command is sent to the disk, the message may be removed.	Press [Select] to continue. Refer to the Windows JetAdmin Utility or Macintosh LaserJet Utility to initialize the disk. Replace the Disk Cable Assembly. Replace the Disk Assembly. Replace the Formatter.
40.x MIO ERROR	Error Message 40.00.00	An abnormal connector break in the specified MIO card occurred while transferring data from the computer to the printer. x = 1: HP MIO port 1 (upper slot) x = 2: HP MIO port 2 (lower slot)	Press [Select] to continue. Data will be lost. The current print job at the port in question will be canceled. The physical port will be removed from the list of active ports. The system will continue operating with all other active ports. Cycle the printer's power to replace the port on the list of active ports.
41.x ERROR	Error Message 40.01 40.02 40.03 40.04 40.05	A temporary, non-fatal printing error occurred. This error is saved in the error log. x = 1: GENERAL MISPRINT ERROR x = 2: BEAM DETECT MALFUNCTION x = 3: IMPROPER PAPER SIZE x = 4: NO VIDEO SYNC x = 5: NOISY VIDEO SYNC REQ SIGNAL	Remove the page from the output message bin, then press [Select] to continue. The page containing the error will automatically reprint. If the printer is set to AUTO CONTINUE=ON, the printer will automatically continue printing when this error occurs. For improper paper size errors, check for paper jams. Refer to 13.x PAPER JAM earlier in this table for more information. If the error persists, cycle power to the printer.
50.x FUSER ERROR CYCLE POWER *If LaserJet 5Si HM, the Thermal Control PCA . . .	Service Message 50.01.00 50.02.00 50.03.00 50.04.00	The fuser is malfunctioning, which may be from either an overheating or under-heating condition. x =1: Fuser low temperature failure x =2: Warm-up failure (timed out) x =3: Over temperature failure x =4: Bad fuser	Turn off the printer for at least 20 minutes and then turn it back on. If the error continues: Verify that the Fusing Assembly is installed correctly and is fully seated into its connectors (no bent pins or pins outside their receptacles). Reseat or replace the fuser cable assembly. Replace the DC Controller. Thermal Control PCA is malfunctioning instead of the fuser.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
51.x ERROR CYCLE POWER	Service Message 51.01.00	A laser subsystem problem exists. x = 1: Beam detect malfunction x = 2: Laser malfunction	Press [Select] to resume operation. NOTE: If the printer is set to AUTO CONTINUE=ON, the printer will automatically continue printing when this error occurs. If error persists, reseat or replace cables from the DC Controller to the Laser/Scanner Assembly. Replace the Laser/Scanner Assembly. Replace the DC Controller PCA.
52.x ERROR CYCLE POWER	Service Message 52.01.00 52.02.00	A scanner subsystem problem exists. x = 1: Scanner start-up failure x = 2: Scanner rotation failure	Turn off the printer and then turn it back on. If the error continues, reseat or replace cables from the DC Controller to the Laser/Scanner Assembly. Replace the Laser/Scanner Assembly. Replace the DC Controller PCA.
53.xy.zz MEMORY ERR CYCLE POWER	Service Message 53.xy.zz	A SIMM memory error occurred. x = Hardware Type 0: ROM 1: RAM y = Hardware Device 0: Internal Memory 1: SIMM Slot 1 2: SIMM Slot 2 3: SIMM Slot 3 4: SIMM Slot 4 zz = Error Number 0: Unsupported memory 1: Unrecognized memory 2: Unsupported memory size 3: Failed RAM test 4: Exceeded maximum RAM size 5: Exceeded maximum ROM size 6: Invalid SIMM speed 7: SIMM reporting information incorrectly 8: SIMM RAM parity error 9: Not used 10: SIMM address conflict 11: ROM out of bounds 12: Could not make temporary mapping	Make sure the SIMM is installed correctly. Verify all memory SIMMs are HP products or remove non-HP memory and retry. Problems caused by non-HP products are NOT covered by this product's warranty or any applicable maintenance contract. Replace the SIMM that caused the error. NOTE: If no replacement SIMM is available, press [Select] to continue. The SIMM that caused the error will not be configured. If the SIMM device has more than one bank of memory, the good banks will be configured.
54 2-SIDED ERROR CHECK DUPLEXER	Service Message 54.00.00	A malfunction occurred in the duplexer.	The job may have to be canceled and the duplexer removed to continue. Replace the duplexer and reprint the job.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
55.xx ERROR PRESS SELECT KEY	Service Message 55.xx.00	A printer command error occurred, which indicates a problem between the Formatter PCA and the print engine. xx = error code: 01 =Unable to bring up the engine 02 =Excessive noise glitches on the Printer Ready signal (PPRDY) 03 =Printer Ready signal (PPRDY) was lost 04 =No response to a signal communicate request 05 =Engine reporting different source and/or destination than was selected by the Formatter PCA 06 =Unable to synchronize the engine serial communications 07 =Serial receive parity error 08 =Serial transmit parity error 09 =Missed a serial communication interrupt 10 =Serial communication is hung 11 =Lost a serial communication extended interrupt request (XISR) 12 =Invalid communication timeout error 13 =Serial communication delayed	Cycle power. If the error continues, check the Formatter seating into DC Controller. Ensure no pins are bent. Reseat or replace the cable from the DC Controller and the Laser/Scanner Assembly. Replace the Laser/Scanner Assembly. Replace the DC Controller PCA. Replace the Formatter PCA. Note: These connections may appear to be correct, but if the problem persists, reseat cable connections making sure they are properly connected.
56.x ERROR PRESS SELECT KEY	Service Message 56.01.00 56.02.00	An invalid input source or output destination was selected. x = 1: Invalid input source x = 2: Invalid output destination	Check the installed input and output devices. Select a valid device. If message is intermittent, from the Configuration Menu, select POWERSAVE=OFF.
57.x FAN FAILURE CALL SERVICE	Service Message 57.01.00 57.02.00 57.03.00 57.04.00	A fan motor failure occurred (refer to Figure 7-3). All fans are enabled to low speed operation at printer power-on. Fans will go into high-speed operation during the print cycle. All fans are disabled during PowerSave Mode. x = 1: FM1 (Laser/Scanner Fan) x = 2: FM2 (Power Supply Cooling Fan) x = 3: FM3 (Formatter Fan) x = 4: FM4 (Face Down Deliver Fan)	Cycle power. It the message continues, check and reseat cabling between the fan motor(s) and the DC Controller PCA. Fan 1 J208 Fan 2 J216 Fan 3 J210 Fan 4 J225 Replace the faulty fan motor. Replace the Low Voltage Power Supply. Replace the DC Controller.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
58.x PRINTER ERROR CYCLE POWER	Service Message 58.01.00 58.02.00 58.03.00 58.04.00	The tray lifter malfunctioned. The tray lifter mechanisms lift the paper stack in each tray until the paper is located directly beneath the feed rollers. To watch Tray 3 lift, remove Tray 2 and use Tray 2's cavity to see Tray 3 move into position during power-on. To watch Tray 2 being lifted, remove the duplexer, if installed, and through the duplex paper jam access door, watch Tray 2 being lifted during power-on. To watch Tray 4 being lifted, open the Vertical Transfer Door and then open and close Tray 4. Override the Vertical Transfer Door closed photosensor (PS35)(refer to Figure 7-16) and see if Tray 4's paper stack is being lifted. 58.1 = Tray 2 lifter malfunction 58.2 = Tray 3 lifter malfunction 58.3 = Tray 1 lifter malfunction 58.4 = Tray 4 lifter malfunction	Press [Select] to continue. The printer will ignore the faulty tray until the next power cycle. Cycle power. If the message persists for Trays 1, 2 and 3: Replace the Paper Input Assembly. Replace the Main Gear Assembly. For Tray 4, check the white bushing, located on the lower part of the Main Drive Assembly (refer to Figure 6-56). Replace Tray 4. Replace the Gear Assembly.
59.x PRINTER ERROR CYCLE POWER	Service Message 59.01.00 59.02.00	The Main Motor is powered by +24VB, which is generated when Switch 1401 on the Switch/Sensor PCA closes. 59.1 = Main motor start up failure. 59.2 = Main motor rotation failure.	Cycle power. If the message persists, replace the Switch/Sensor PCA. Check and reseat cabling between the main motor and DC Controller PCA (J218). Replace the main motor. Replace the DC Controller. NOTE: To determine if the Main Motor is rotating, turn on the printer and see if the top face-down stacker rollers are rotating.
61.x PRINTER ERROR CYCLE POWER	Service Message 61.0x.00	The printer encountered a parity error when accessing either internal memory (x = 0), or SIMM memory (x = 1-4).	Cycle power. If the message persists: Verify that the SIMM module is installed correctly. Turn off the printer, remove the SIMM module, then turn on the printer. If the message does not display, replace the defective SIMM. If the message continues, turn off the printer and remove the next SIMM module, then turn on the printer. Repeat this step for the remaining SIMM modules until the problem is isolated. If the message continues with no SIMMs installed, replace the Formatter PCA.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
62.x PRINTER ERROR CYCLE POWER	Service Message 62.0x.00	The printer encountered a problem when accessing an internal memory (CRC error). x = device 0 = Formatter 1-4 = SIMM Module	Cycle power. If the message persists, verify that the SIMM module is installed correctly. Turn off the printer, remove the SIMM module, then turn on the printer. If the message does not display, replace the defective SIMM. If the message continues, repeat the step above for the remaining SIMM modules to isolate the problem. If the message continues with no SIMMs installed, replace the Formatter PCA.
64 PRINTER ERROR CYCLE POWER	Service Message 64.00.00	A scan buffer error occurred.	Cycle power. If the message persists, replace the DC Controller PCA. Replace the Formatter PCA.
65 PRINTER ERROR CYCLE POWER	Service Message 65.00.00	A dynamic RAM controller error occurred.	Cycle power. If the message persists, replace the Formatter PCA.
66.0.1 through 66.0.45 DEVICE ERROR CYCLE POWER	Service Message 66.00.01 through 66.00.45	The printer is unable to communicate with the External Paper Handling PCA. 66.00.15=power failure or AC power supply disconnected. 66.00.31-66.00.35 are related to non-supported printers. 66.00.41-66.00.45 are related to invalid device configuration.	For error codes 1-22: Verify C-Link Cables are installed correctly (refer to Figure 7-7). Print the PCL configuration pages. Note which installed devices are NOT present on configuration pages (refer to Figure 7-5). Replace the External Paper Handling Controller. If problems persist, reduce the printer to a minimum configuration. For example, start with the Formatter PCA only and print the PCL configuration pages. Add the External Paper Handling Controller (no cable) and print the PCL configuration pages. Add the C-Link Cable to the 2000-Sheet Input and retry until all devices are added, or the failing device is identified. Replace the controller for the failing Paper Handling Device. For errors 66.00.14 through 66.00.22, the printer may have possible short term AC power failures. Replace the Multi-Bin Mailbox's External Power Supply.

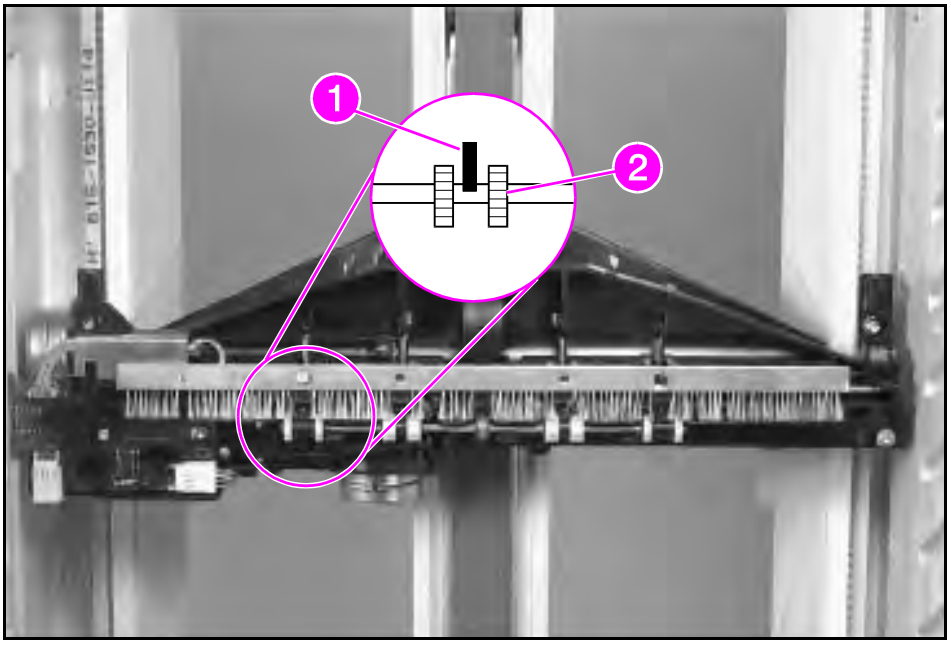
Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
66.1.1 DEVICE ERROR CYCLE POWER	Service Message 66.01.01	Feed Motor malfunction. The 2000-Sheet Input Feeder Main Drive Motor provides all "drive" capabilities for feeding paper in Tray 4.	To see if the 2000-Sheet Main Motor is functioning, open the vertical transfer door. Then open and close Tray 4. Override the vertical transfer door open photosensor (PS35). (Refer to Figure 7-15.) See if the white drive roller on the lower right-hand side of the printer rotates. If it does not rotate, check the cable connections from the 2000-Sheet Feeder to the Main Drive Assembly (callout 1, Figure 6-56), Pickup Assembly (callouts 2 and 3, Figure 6-59), Controller PCA (callout 1, Figure 6-58), Power Supply (callout 1, Figure 6-61). Replace the Pickup Assembly. Replace the Controller PCA. Replace the 2000-Sheet Feeder's power supply.
66.1.2 DEVICE ERROR CYCLE POWER	Service Message 66.01.02	Lifter malfunction. Under normal operating conditions, when Tray 4 is closed, the Tray 4 paper stack lifts until the paper is directly beneath Tray 4's feed rollers. Photosensor flag PS34, the Paper Surface photosensor determines when the paper stack is lifted to its feed position (refer to Figure 7-23).	See the recommended actions for Message Tray 4 Empty.
66.1.3 DEVICE ERROR CYCLE POWER	Service Message 66.01.03	Both Feed Motor and Lifter malfunction.	See recommended actions for Error Log Messages 66.01.01 and 66.01.02.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
66.2.1 DEVICE ERROR CYCLE POWER	Service Message 66.02.01	Home reference is not found. During the power-on sequence, the Multi-Bin Mailbox and the delivery head travel the length of the mailbox verifying that all the bins and the stapler are installed. This is performed when the PS Bin Full/Head Position photosensor, located in the Head Assembly, reads a scan bar. A scan bar forms by plastic protrusions located on the rear surface of each bin and the stapler (refer to Figure 7-12). When all the bins are in place, one continuous scan bar is formed.	Roll the mailbox assembly away from the printer. Inspect the front of the mailbox to determine if one continuous scan bar is present (refer to Figure 7-12). Each bin, and the stapler assembly, if installed, MUST be in place to form a continuous scanbar. Ensure the stapler is firmly seated on to the mailbox and ensure all mailbox trays are in place. With the 8-bin mailbox, ensure the Blind Cover is installed. Verify the Multi-Bin Mailbox Head assembly can move freely. Override the Mailbox Interlock switch (Figure 7-25) then power-on the printer and observe the mailbox head assembly go through the normal power-up sequence. If the preceding actions do not correct the error, replace the Multi-Bin Mailbox.
66.2.2 DEVICE ERROR CYCLE POWER	Error Message 66.02.02	One or more bins were not found.	Make sure that all bins are properly installed. Check the bins for damage (refer to Figure 7-12).

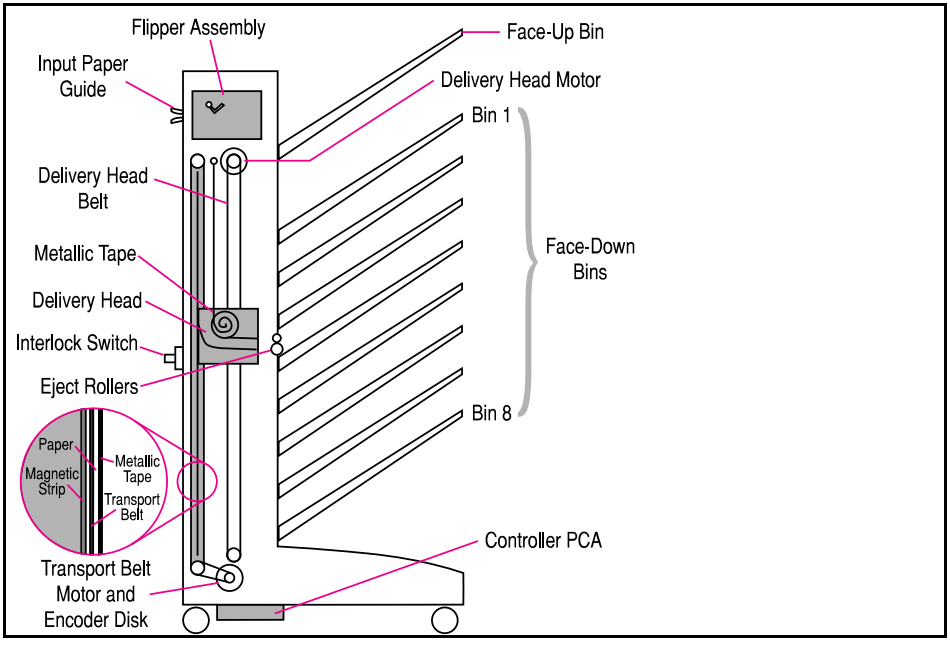
Figure 7-21



Delivery Head Exit Roller

1. Exit Roller. 2. Guide Fingers.

Figure 7-22



Multi-Bin Mailbox

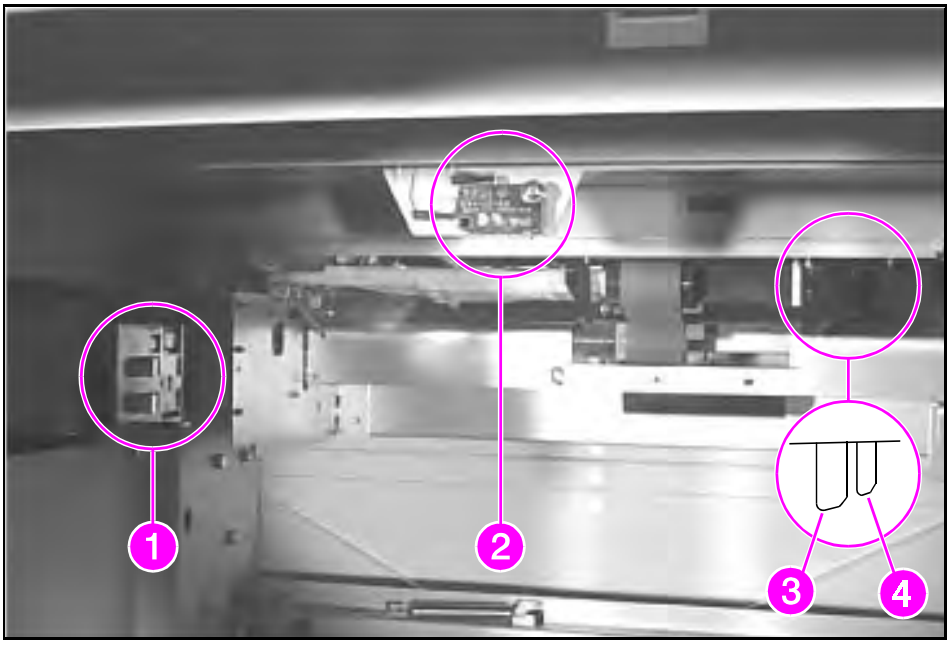
Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
66.2.3 DEVICE ERROR CYCLE POWER	Error Message 66.02.03	Delivery Head rollers are not sliding. One or more fingers on the delivery roller mechanism in the mailbox's Delivery Head Assembly is out of position. NOTE: Power off the printer. Position the mailbox away from the print engine. Hold down the mailbox interlock, then power on the printer (refer to Figure 7-12). The mailbox goes through its normal power-on sequence: The head assembly in the mailbox moves to the bottom-most position on the mailbox, then it travels up to its home position. Any fault condition in the mailbox prevents it from going through its normal power-on sequence.	Watch the mailbox delivery head from the rear. It may be necessary to first remove the stapler. If it is present, you should see four pairs of white rollers. A black roller is sandwiched between the white rollers. A small plastic "finger" should be riding on the top surface of the black roller (refer to Figure 7-21). Verify the Multi-Bin Mailbox Head assembly can move freely. If the preceding actions do not correct the error, replace the Multi-Bin Mailbox.
66.2.4 DEVICE ERROR CYCLE POWER	Error Message 66.02.04	Transport Belt stopped at power on. Too many retries to start.	Verify proper installation of Multi-Bin Mailbox to printer. Check site requirements. See recommended action for Error Log message 13.03.32.
66.2.5 DEVICE ERROR CYCLE POWER	Error Message 66.02.05	Transport Belt stopped. Too many retries to start. Multi-Bin Mailbox may not be attached/aligned completely to printer.	See recommended actions for Error Log message 13.03.32.
66.2.6 66.2.7 DEVICE ERROR CYCLE POWER	Error Message 66.02.06 66.02.07	Communication or protocol error.	Cycle Power. Verify that the C-Link cables are installed correctly. Check cable connections for bent pins and reseat connections. (refer to Figure 7-7). Replace as required. Replace the External Paper Handling PCA. Replace the Multi-Bin Mailbox Controller PCA. See recommended action for errorlog code "66.00.01." Check the ground connections on anti-ESD brushes (Delivery Head and Flipper), the Input Paper Guide, the Multi-Bin Mailbox Controller PCA, the Flipper shafts, and the Stapler retainer shaft and wire bail.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
66.2.14 DEVICE ERROR CYCLE POWER	Error Message 66.02.14	Multi-Bin Mailbox C-Link is not responding.	Cycle power. Print the PCL configuration pages. Note which installed devices are NOT present on the configuration pages (refer to Figure 7-5). Verify that the C-Link Cables are installed correctly. Check cable connections for bent pins and reseat connections. Check to make sure that the MBM DC Power supply is connected (refer to Figure 7-7). Replace the External Paper Handling Controller. If problems persist, reduce the printer to minimum configuration. For example, start with the Formatter PCA only and print the PCL configuration pages. Then add the External Paper Handling Controller without the cable and print the PCL configuration pages. Add the C-Link Cable to the 2000-Sheet Input and retry until all devices are added or the failing device is identified. Replace the Controller for the failing Paper Handling Device. For errors 66.00.14 through 66.00.22, the printer may have possible power failures. Replace the Multi-Bin Mailbox's external power supply.
67 PRINTER ERROR	Service Message 67.00.00	A miscellaneous interface hardware error occurred.	Turn off the printer and all accessories, then turn them ON. If the message persists, check all installed accessories and C-Link cables. Check all installed FRUs. Replace the Formatter PCA.
68 NVRAM	Service Message 68.00.00	The NVRAM has reset or the Formatter firmware has been replaced. An NVRAM reset sets some parameters to their default settings. For example, the page count is set to 0, the S/N is set to AAXXYY9999, the MIO Card(s) configuration and the printer's error log are cleared. Reconfigure the MIO cards with HP JetAdmin to work again.	Print the error log and the PCL configuration pages. Re-enter the printer's S/N and page counts from SERVICE MODE.
68 ERROR CHECK CONFIGURATION	Service Message	Non-volatile memory (NVRAM) error occurred.	Cycle power. If the error persists, follow these steps: Replace the Formatter PCA. Replace the DC Controller PCA.

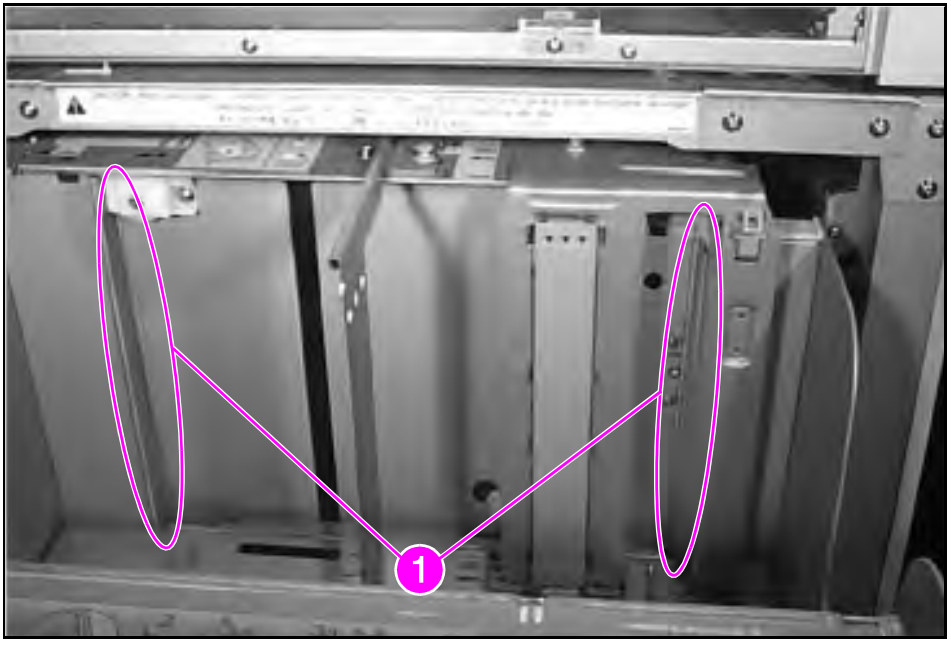
Figure 7-23



Tray 4 Cavity

1. Paper Quantity Switches
2. Lifter Safety Switch (SW31)
3. Paper Surface Sensor Flag (SW34)
4. Tray 4 Paper Out Flag (SW33)

Figure 7-24



Tray 4 Lift Cables

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
68 NVRAM FULL CHECK CONFIGURATION	Service Message	The non-volatile memory (NVRAM) is full.	Press [Select]. The printer will go offline. Remove MIO card and perform a COLD RESET. The printer displays the message RESTORING FACTORY SETTINGS. When the initialization is complete, the printer will automatically return online.
70 or 71 ERROR	Service Message	A language (personality) SIMM problem was identified. The SIMM is not compatible with the firmware.	Remove or replace the language (personality) SIMM.
79 SERVICE (04CC)	Catastrophic System Message	The Main Motor was running for over 20 minutes.	See Service Note C3166-08. See recommended action for General "79 Service (XXXX)" messages.
79 SERVICE (0142)	Catastrophic System Message	Duplex job selecting media by source and odd number of pages.	See recommended action for General "79 Service (XXXX)" messages.

Table 7-5 Printer Control Panel Messages (continued)

Message	Error Log Category/ Message	Description	Recommended Action
79 SERVICE (xxxx) CALL SERVICE	Catastrophic System Message	An unrecoverable firmware error occurred. The numbers (xxxx) following the error indicate the specific error.	Record the error message including the number in parentheses (XXXX), then press SELECT. Write down any message, if any, and press SELECT again and write down any message. Turn off the printer, and then on again. If the message persists, determine if the error occurs with one particular print job or application. If yes, it is very probable that the print job or application is corrupt; try another request. Additionally, if the message persists with one particular driver (PCL driver) try the PostScript or vice versa. Try a different driver, such as 4Si, if available. If the message continues to persist, check the following: 1. Cycle power 2. Reseat or replace the interface cable and cycle power. 3. Remove the SIMMs one at a time and cycle power. 4. Remove the MIO Card(s) one at a time and cycle power. 5. Try using the parallel interface, if possible. 6. With the MIO cards out of the printer, perform a COLD RESET. 7. If error continues, replace formatter. Write down the page count and serial number.
80 SERVICE (XXXX) CALL SERVICE	Catastrophic System Message	An unrecoverable MIO protocol error occurred. The numbers (xxxx) following the error indicate the specific error.	Record the error message and the 4-digit code before continuing. Cycle power. If the message persists, remove the MIO cards one at a time and cycle power to isolate the problem. Try using the parallel interface, if possible. Replace the defective MIO card. If it is an HP card, include the 4-digit error code with the defective MIO card and return it to HP for evaluation. Replace the Formatter PCA.

Image Formation Troubleshooting

Check the Toner Cartridge

Image formation defects are often the result of toner cartridge problems. If there is any doubt, always replace the toner cartridge before troubleshooting image defects.

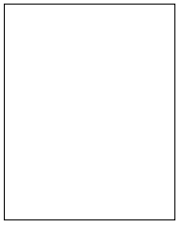
Use the following check list to ensure that the toner cartridge is still operable.

- Inspect the toner cartridge for remaining toner.
- Check the expiration date of the toner cartridge (stamped on the cartridge box).
- Check the toner cartridge to see if it has been disassembled or refilled.
- Ensure that the toner cartridge is seated properly in the cavity.
- Inspect the cartridge for leaking toner through worn seals. (If the drum has been manually rotated it may have caused internal damage and toner spills may result).
- Check the surface of the photosensitive drum in the cartridge to see if it has been damaged or scratched. Touching the drum will contaminate the photosensitive surface and may cause spotting and defects during printing.
- White areas on the page may indicate that the drum has been exposed to light for too long. If white areas appear, stop the printer and wait a few minutes. This should eliminate most defective images. If not, the toner cartridge may be placed in a dark environment for several days, which may restore some life to the drum.

Faulty Image Examples

This section illustrates some image defects and their possible causes. Since there are many variables in the printing process, it is possible to encounter image defects that are not shown in the following illustrations. If you find a defect that is not illustrated, record the probable cause along with the printing environmental conditions and save a copy of the defect for future reference.Each example includes a table that lists, in order, the probable causes of the image defect and the recommended repair action.

Table 7-6 Blank (White) Page



Possible Cause	Recommended Action
OCCASIONAL BLANK PAGES:	
1. Software Configuration.	Make sure the application software is not sending incorrect page length requests, or extra page eject commands.
2. Network Configuration. Some sharing devices on networks may generate a blank page as a separator.	Check with the network administrator.
3. Multiple Feeds. The printer may be feeding two or more pages at once because the paper is difficult to separate.	Remove the paper from the tray and fan the paper edges to separate the pages (see *HP LaserJet Printer Family Paper Specifications Guide*).
ALL PAGES BLANK:	
1. Sealing tape left in toner cartridge.	Remove the sealing tape.
2. Empty or defective toner cartridge.	1. If unsure, weigh the cartridge: Full weight = 3000 grams (106 oz) Empty weight = 2300 grams (80.5 oz) NOTE: Some toner may reside in the waste toner cavity, affecting the weight of the cartridge. 2. Perform the “Drum Rotation Functional Check” described later in this chapter or try a known good toner cartridge. Replace the toner cartridge if necessary.
3. Defective or contaminated Transfer Roller. Without a functional Transfer Roller, toner cannot be pulled from the photosensitive drum to the paper.	Check roller installation and contact. Perform the “Half Self Test Functional Check” described later in this chapter. If there is an image on the drum, but not on paper, replace the Transfer Roller.
4. High voltage connector springs are dirty or defective. The high voltage connectors are mounted on the High Voltage Power Supply PCA and protrude into the toner cartridge cavity.	Check the springs for functionality. Clean if dirty, replace if defective or missing.
5. Laser/Scanner door not opening properly.	1. Remove and re-seat the toner cartridge. 2. Check the Laser/Scanner shutter door for proper operation. If defective, replace the Laser/Scanner Assembly.
6. High Voltage Power Supply is defective.	Replace the High Voltage Power Supply PCA.
7. DC Controller PCA is defective. The DC Controller supplies the proper voltage to the High Voltage Power Supply PCA.	Replace the DC Controller PCA.

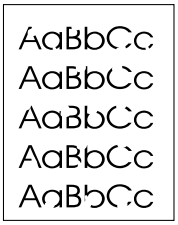
Table 7-7 Black Page

Possible Cause	Recommended Action
1. Defective toner cartridge.	Replace the toner cartridge.
2. Light is leaking into the printer.	Ensure all covers are in place.
3. High voltage contact springs are dirty or defective. The high voltage contacts are mounted on the High Voltage Power Supply PCA and protrude into the toner cartridge cavity.	Inspect and clean the high voltage contacts. If damaged, replace the High Voltage Power Supply PCA.
4. High voltage power supply circuit is defective (not supplying the correct negative voltage).	Replace the High Voltage Power Supply PCA.
5. DC Controller PCA is defective. If the DC Controller turns on the laser beam continuously, the entire surface of the Photosensitive drum is neutralized causing a completely black page.	Replace the DC Controller PCA.
6. Laser/Scanner Assembly is faulty (turning laser on continuously).	Replace the Laser/Scanner Assembly.
7. Connectors between the Laser/Scanner unit and DC Controller are not seated properly or are defective.	Inspect and reseat the connectors. Replace cables as necessary.

Table 7-8 Fading Print

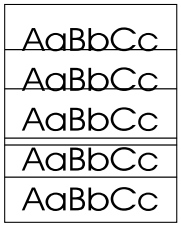
Possible Cause	Recommended Action
1. Toner supply is low.	Shake the cartridge gently to redistribute the toner, or replace the cartridge.
2. Print Density is set incorrectly.	Change to a darker setting and retry printing.
3. EconoMode is on. EconoMode saves toner by reducing the dot density. This may appear to be a print quality problem in some cases.	Turn EconoMode off. Verify that EconoMode is not being enabled by either the printer driver or the job application.
4. Paper does not meet specs. The moisture content, conductivity, or surface finish may not work correctly with the electrophotographic process.	Try a different paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).
5. Transfer Roller is defective or incorrectly installed. If the Transfer Roller loses conductivity, it cannot effectively pull toner from the drum to the paper.	Inspect the Transfer Roller for proper installation and contact. If the Transfer Roller is damaged, replace it.
6. Laser/Scanner door is not opening properly.	1. Remove and re-seat the toner cartridge. 2. Check the Laser/Scanner shutter door for proper operation. If defective, replace the Laser/Scanner Assembly.
7. High voltage contact springs are dirty or defective. The high voltage contacts are mounted on the High Voltage Power Supply PCA and protrude into the toner cartridge cavity.	Check the contacts for functionality. If dirty, clean using alcohol; if damaged, replace the High Voltage Power Supply PCA.
8. High Voltage Power Supply PCA is defective.	Replace the High Voltage Power Supply PCA.
9. DC Controller PCA is defective. The DC Controller supplies the proper voltage to the High Voltage Power Supply PCA.	Replace the DC Controller PCA.

Table 7-9 Dropout



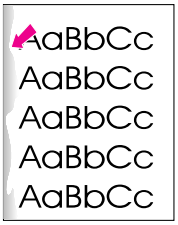
Possible Cause	Recommended Action
1. Single sheet of paper defective.	Try reprinting the job.
2. Paper does not meet specs. The paper moisture content, conductivity, or surface finish may not work correctly with the electrophotographic process.	Try a different paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).
3. DC Controller defective (low primary voltage).	Replace the DC Controller.
4. High Voltage Power Supply PCA defective.	Replace the High Voltage Power Supply PCA.
5. Transfer Roller defective.	Replace the Transfer Roller.

Table 7-10 Black Lines (parallel or perpendicular to path)



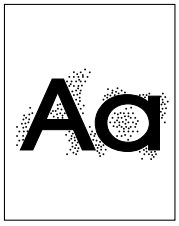
Possible Cause	Recommended Action
1. Toner cartridge not seated properly.	Remove the cartridge and reinsert it.
2. Toner cartridge is damaged.	Inspect the toner cartridge for a scratched or streaked photosensitive drum. Clean printer (see Chapter 4) and replace cartridge.
3. Fusing Assembly is contaminated or damaged.	Inspect the Fusing Assembly for toner build-up or scratches on the fuser rollers. Try cleaning with alcohol. Replace the Fusing Assembly if damaged.
4. Static Eliminator Strip teeth are contaminated or defective.	Clean using compressed air.
5. Repetitive defect. If the lines are repeated at a consistent interval down the page, this is a repetitive defect.	Refer to the "Repetitive Image Defect Ruler" (Figure 7-25).

Table 7-11 Toner Smear



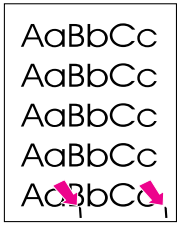
Possible Cause	Recommended Action
1. Paper does not meet specs. The moisture content, conductivity, or surface finish of the media being printed may not work correctly with the electrophotographic process.	Try a different paper lot or other media (see *HP LaserJet Printer Family Paper Specifications Guide*).
2. Dirty Fusing Rollers. Toner build-up can cause the print on a page to smear.	Remove and inspect the Fusing Assembly for excessive toner build-up. Clean using alcohol.
3. The Static Eliminator Strip is dirty or is not grounded, allowing a static charge to remain on the page.	Clean the Anti-Static Brush. Use compressed air to clean.
4. Fusing Assembly is defective. The print will smear if the Fusing Assembly is not heated sufficiently to bond the toner image to the paper.	Replace the Fusing Assembly.
5. DC Controller is defective. The DC Controller regulates fusing roller temperature.	If a new Fusing Assembly does not resolve the problem, replace the DC Controller PCA.

Table 7-12 Background Scatter (or Leading Edge Halo)



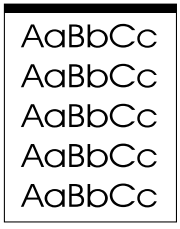
Possible Cause	Recommended Action
Random Background Scatter	
1. Paper does not meet specs. The moisture content, conductivity or surface finish may not work correctly with the electrophotographic process.	Try a different media or paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).
2. Inside of printer is dirty (toner may have leaked out of the toner cartridge).	Clean inside of printer (see Chapter 4). Install a new toner cartridge if leaking.
3. Printing on envelope seams. Printing on an envelope seam can cause a background scatter problem.	Move the text to an area without seams. If not printing on seams, try a higher print density setting (see item 6, below).
4. Defective toner cartridge.	Install a new toner cartridge.
5. Dirty or worn Transfer Roller. A worn Transfer Roller can cause background scatter due to improper bias voltages.	Clean the Transfer Roller using a **dry, lint-free cloth**. DO NOT touch the Transfer Roller with your fingers. If the problem persists, replace the Transfer Roller Assembly.
6. Print Density set too low causing background scatter, particularly with envelopes and heavier papers.	Adjust the print density to a higher setting.
Background Scatter at Leading Edge Only (Leading Edge Halo)	
1. This problem is caused by toner buildup in the Fuser Inlet Guide.	Clean Fuser Inlet Guide.

Table 7-13 Repetitive Defects



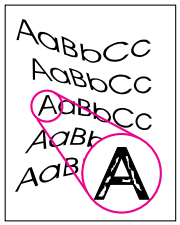
Possible Cause	Recommended Action
1. Toner cartridge is damaged. If the defect repeats at any of the following intervals and in the direction of paper movement, it is associated with a component inside the toner cartridge. See note below. Printed side defects Toner cartridge drum, 94mm (3 3/4 inches) Developing roller, 51mm (2 inches) Back side defect Charging roller, 38mm (1 1/2 inches)	Inspect the drum for scratches or damage. Replace the toner cartridge. Use the Repetitive defect Ruler, Figure 7-25.
2. Transfer Roller has toner on it. If defects occur on the back of the page at intervals of 61mm (2 3/8 inches), the Transfer Roller may be dirty. This problem sometimes corrects itself after a few pages.	Clean the Transfer Roller using a **dry, lint-free cloth**. DO NOT touch the Transfer Roller with your fingers. If the problem persists, replace the Transfer Roller Assembly.
3. Dirty Rollers. Any dirty roller in the paper path may result in a repetitive print defect.	Examine and clean rollers in the paper path (refer to Chapter 4).
4. Fusing Assembly is dirty or defective.	Clean the Fusing Assembly using alcohol. If the problem persists, replace the Fusing Assembly.
5. Gears are worn, causing slippage or jumping.	Inspect the gears driving the toner cartridge and the Fuser. Replace the Main Drive Assembly if necessary.
6. Paper does not meet specs. The surface of the paper may be too coarse, causing repeated marks.	Try a different media or paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).

Table 7-14 Line at Edge of Paper



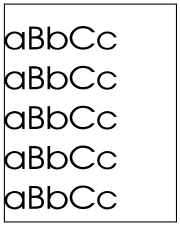
Possible Cause	Recommended Action
Defective toner cartridge. The photosensitive drum is wearing out. The line will grow wider, with cross-hatching. Shaking the cartridge does not relieve the problem.	Replace the toner cartridge.

Table 7-15 Improperly Formed Characters, Character Voids



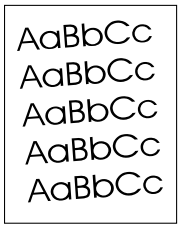
Possible Cause	Recommended Action
1. Paper surface too rough. Toner migrates to low spots, leaving higher areas void.	Turn EconoMode OFF. Use paper with correct finish (smoothness) (see *HP LaserJet Printer Family Paper Specifications Guide*).
2. Printing on wrong side of paper. The label on the ream of paper indicates which side to print on. The different surface properties of some papers may cause problems if loaded wrong side up.	Turn EconoMode OFF. Check for the arrow on the paper wrapper. Be sure paper is loaded with the **arrow pointing UP** in Tray 1, or **arrow pointing DOWN** in Trays 2, 3, and 4.
3. Paper surface is too smooth for proper toner adhesion.	Turn EconoMode OFF. Use paper with correct finish (smoothness) (see *HP LaserJet Printer Family Paper Specifications Guide*).
4. Bad transparencies. Transparencies can have this problem because they are not designed for proper toner adhesion.	Turn EconoMode OFF. Use Hewlett-Packard approved transparencies (see *HP LaserJet Printer Family Paper Specifications Guide*).
5. Bad Transfer Roller. If the Transfer Roller has finger oils on its surface, is dirty, or is worn-out, this problem can result.	Turn EconoMode OFF. Clean the Transfer Roller using a **dry, lint-free cloth**. DO NOT touch the Transfer Roller with your fingers. If the problem persists, replace the Transfer Roller Assembly.
6. Bad Laser/Scanner Assembly.	Replace the Laser/Scanner Assembly.

Table 7-16 Faulty Registration



Possible Cause	Recommended Action
1. Overloaded paper tray. If the tray is overloaded, the Pickup Rollers may not pick correctly.	Reload proper amount of paper **squarely** in the tray. Review paper loading with the customer.
2. Paper guide on the paper tray is incorrectly adjusted. If the guide is pushing too tightly against the paper, it may be delayed in being pulled into the printer. If the guide is too loose it may cause image skewing.	Verify that the paper guide is adjusted for the correct paper size and is locked into position.
3. Paper does not meet specs. The surface of the paper may be too smooth for the Pickup and Feed Rollers to correctly feed paper into the printer.	Try a different paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).
4. Worn or broken drive gears. If any gear within the drive train or paper path becomes excessively worn or dirty, erratic paper movement can result.	Replace the defective gear or Main Drive assembly.
5. Worn Pickup, or Registration Rollers. Paper is not being picked-up consistently.	Inspect all paper path rollers, looking for wear, cracks, or glazing. Replace the worn rollers.

Table 7-17 Image Skew

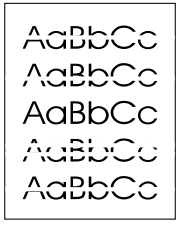


Possible Cause	Recommended Action
1. Paper is loaded incorrectly. If the paper is not installed flush into the paper tray, a skewing problem will result.	Remove paper from the tray and install paper correctly. Position the paper guide correctly for the paper size being used.
2. Bad Paper Lot. Paper that is manufactured poorly or inconsistently, or that has too smooth or too rough a surface texture can cause an image skew problem.	Try a different paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).
3. Worn Pickup and/or Registration Rollers. Paper is not being picked-up consistently.	Inspect all paper path rollers, looking for wear, cracks, or glazing. Replace the worn rollers.

Table 7-18 Bubble Print

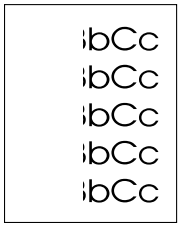
Possible Cause	Recommended Action
1. Photosensitive drum inside toner cartridge is not grounded.	1. Check for proper mounting of HVPS and HVPS ground contacts on the toner cartridge. 2. Check for proper seating of toner cartridge. 3. Replace the toner cartridge.
2. Defective HVPS.	Replace the HVPS.
3. Leaking toner cartridge.	Replace the toner cartridge.
4. Paper does not meet specs. The paper moisture content, conductivity, or surface finish may not work correctly with the electrophotographic process.	Try a different paper lot (see *HP LaserJet Printer Family Paper Specifications Guide*).

Table 7-19 White Stripes (parallel to path)



Possible Cause	Recommended Action
1. Toner cartridge is nearly empty. This can cause uneven toner distribution.	Remove the toner cartridge and shake it gently. The cartridge will soon require replacement.
2. Toner cartridge has been exposed to too much light.	Store the toner cartridge in a darkened environment for several days. This may restore the photosensitive potential.
3. Foreign objects in beam path. Any foreign objects will block the light from developing an image on the Photosensitive drum.	Remove the toner cartridge and check for damage. Replace the toner cartridge if it is damaged. Remove the printer cover and inspect the path from the Laser/Scanner to the toner cartridge drum, looking for foreign objects in the beam path.

Table 7-20 Partial Blank Page

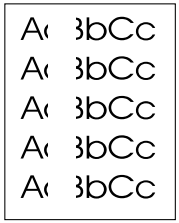


Possible Cause	Recommended Action
1. Page too complex. The printer can not create the image fast enough to keep pace with the print engine.	Set Page Protect to ON or AUTO.
2. Not enough memory. The page is too complex for standard printer memory.	Add printer memory. As an alternative, simplify the print job.
3. Printing on legal-size paper from Tray 4 when software is specifying letter size (this will also cause paper jams).	Review software selection. Ensure that printing is on selected size.

Table 7-21 Compressed Print

Possible Cause	Recommended Action
1. Toner cartridge bushings are too tight. This may occur on refilled toner cartridges.	Replace the toner cartridge.
2. Broken or worn gear.	Inspect and replace the worn gear or assembly.

Table 7-22 Blank Portion in the Middle of the Page (Tray 4 Input only)



Possible Cause	Recommended Action
1. Bad clutch in vertical transfer door.	Replace Tray 4 vertical transfer door.
2. Bad clutch in paper pickup assembly.	Replace Tray 4 paper pickup assembly.

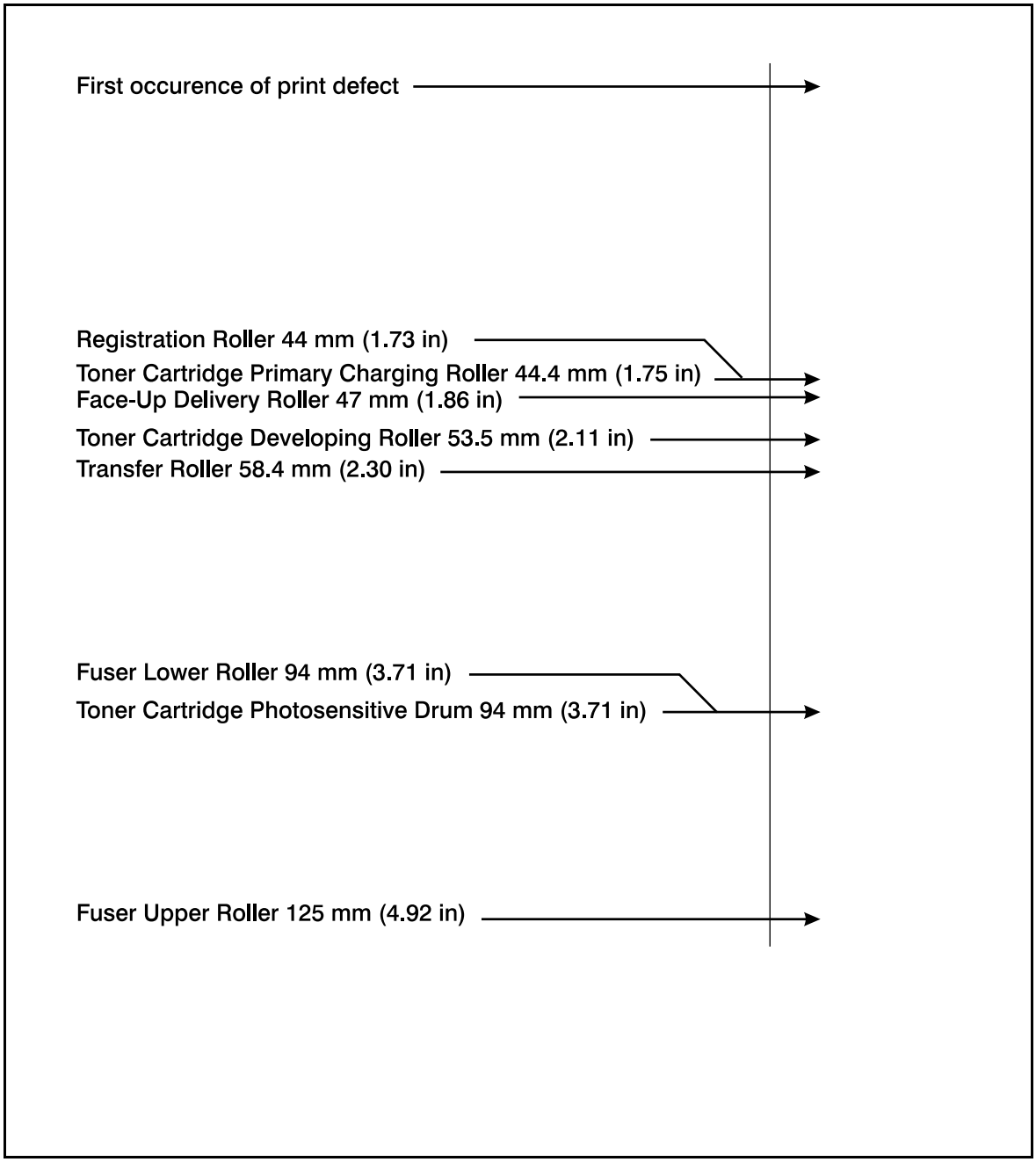

First occurence of print defect
Registration Roller 44 mm (1.73 in)
Toner Cartridge Primary Charging Roller 44.4 mm (1.75 in)
Face-Up Delivery Roller 47 mm (1.86 in)
Toner Cartridge Developing Roller 53.5 mm (2.11 in)
Transfer Roller 58.4 mm (2.30 in)
Fuser Lower Roller 94 mm (3.71 in)
Toner Cartridge Photosensitive Drum 94 mm (3.71 in)
Fuser Upper Roller 125 mm (4.92 in)

Figure 7-25 Repetitive Defect Ruler

Half Self Test Functional Check

The electrophotographic process can be subdivided into the following stages:

- Cleaning (removing excess toner from drum surface)
- Conditioning (placing a uniform electrical charge on drum)
- Writing (laser strikes surface of drum to create latent image)
- Development (formation of the toner image on drum)
- Transfer (charge to transfer the image to paper)
- Fusing (heat and pressure to produce a permanent image)

The purpose of the Half Self Test Check is to determine which process is malfunctioning. Perform the test as follows:

1 Print a PCL Configuration Page from the Control Panel Test Menu.

2 Open the top cover after the paper advances half-way through the printer (about five seconds after the Main Motor begins rotation). The leading edge of the paper should have advanced past the toner cartridge.

3 Remove the toner cartridge.

4 Open the toner cartridge's drum shield to view the drum's surface.

If a *dark and distinct toner image is present* on the drum's surface, assume that the first four functions of the electrophotographic process are functioning (cleaning, conditioning, writing and developing - see Chapter 5), and troubleshoot the failure as a transfer or fusing problem.

If *NO image is present* on the photosensitive drum, perform the functional checks on the following pages:

Drum Rotation Functional Check

The photosensitive drum, located in the toner cartridge, must rotate for the print process to work. The photosensitive drum receives its drive from the Main Drive assembly. To verify whether the drum is rotating:

1 Open the top cover.

2 Remove the toner cartridge.

3 Mark the cartridge's drive gear with a felt-tipped marker. Note the position of the mark.

4 Install the toner cartridge, and close the top cover. The start-up sequence should rotate the drum enough to move the mark.

5 Open the printer, and inspect the gear that was marked in step 3. Verify that the mark moved. If the mark did not move, inspect the Main Drive assembly to ensure that it is meshing with the toner cartridge gears. If the drive gears appear functional, and the drum does not move, replace the toner cartridge.

Note This test is especially important if refilled toner cartridges have been used.

High-Voltage Power Supply Check

The High-Voltage Power Supply PCA provides the necessary voltages for the electrophotographic processes. A method for verifying the high-voltage system is given below:

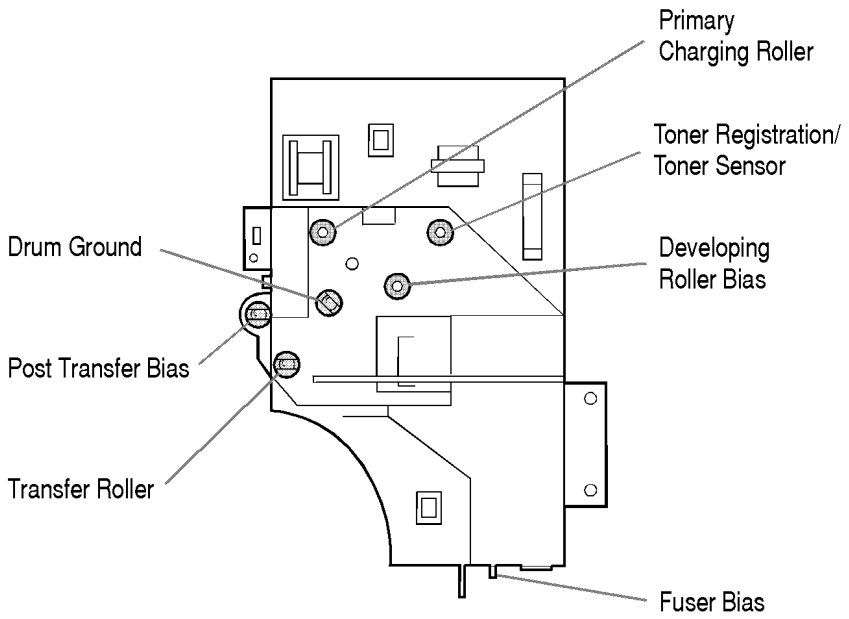
Toner cartridge connection points

Visually inspect the four connection points on the inside right end of the toner cartridge. If they are dirty or corroded, clean the connections. Clean using alcohol only. If damaged, replace the toner cartridge.

High voltage contacts

The high voltage HVPS contact springs mount on the High Voltage Power Supply PCA and protrude through the toner cartridge cavity to contact the toner cartridge. Verify that the contacts are not dirty or corroded, and that the spring action is functional. If dirty, clean using alcohol only; if damaged, replace the High Voltage Power Supply PCA (see Chapter 6 for procedure).

Figure 7-26



High Voltage Power Supply Contacts

Troubleshooting Checks

Paper Jams

Paper jams occur most often when:

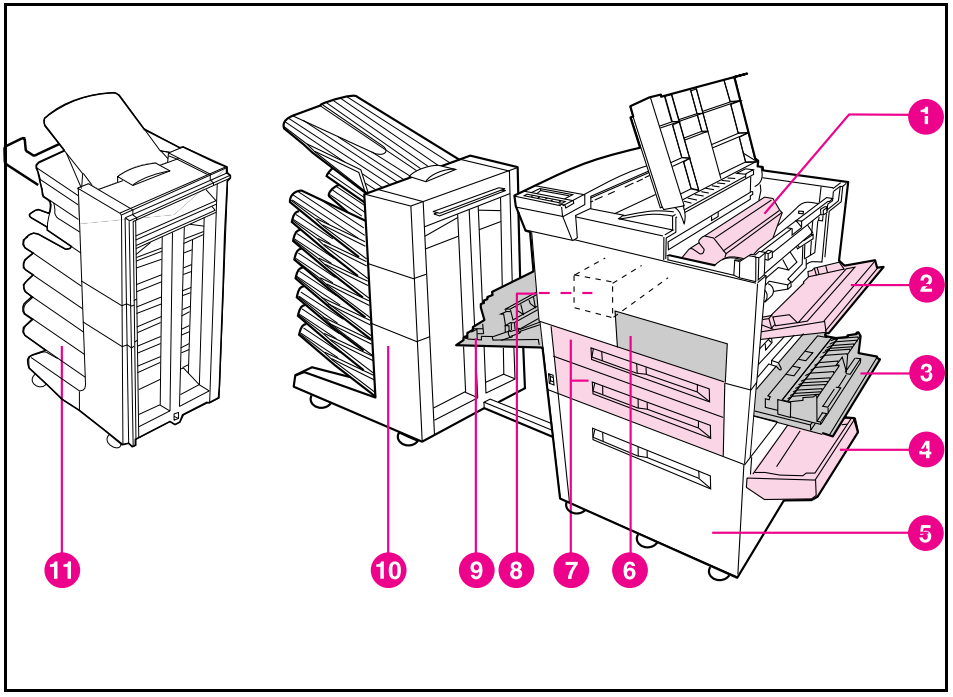
- Paper trays are not correctly loaded. Make sure the paper is loaded with the arrow pointing UP in Tray 1, and DOWN in Trays 2, 3, and 4.
- The print media does not meet the specifications listed in the *HP LaserJet Printer Family Paper Specifications Guide.*
- The media is in poor condition.
- The printer needs cleaning.

The printer monitors the timing of four sensors to determine that a paper jam has occurred: PS2, PS1, PS1403, and PS1402

If a paper jam occurs, the printer will display a 13.x PAPER JAM message on the control panel. See the Printer Messages section earlier in this chapter for detailed descriptions of the 13.x messages and the recommended actions to resolve the messages.

Figure 7-27 shows the possible locations for most of the paper jams.

Figure 7-27



Paper Path Jam Locations

1. Toner cartridge area
2. Tray 1 pick-up roller and feed area
3. Right door
4. Tray 4 transfer door
5. Tray 4 (2000-Sheet Input Unit)
6. Front Door
7. Tray 2 and Tray 3
8. Fusing Assembly Area
9. Left door
10. Multi-Bin Mailbox
11. Mailbox with Stapler

Clearing Paper Jams

Note: Open and close all printer covers to clear the paper jam message. After removing a sheet of paper, you may need to check other areas to ensure that all paper has been removed.

Whenever a sheet of jammed paper becomes badly shredded, it is a good idea to carefully piece all parts together to be sure you haven't overlooked some small part. All portions of a jammed piece of paper must be removed or you may run into repeated jams.

If the jam persists, try the following:

- If you have PostScript installed, use the JAM RECOVERY=ON menu item under the PostScript Menu. The printer will attempt to automatically recover from paper jams.
- Execute a formfeed from the computer or the printer's control panel (Job Control Menu). A formfeed may flush an paper or envelopes left in the printer.
- Check to make sure you have located and removed all scraps of paper from inside the printer.
- Use the Error Log Page and Error Log Codes to aid you in isolating where the errors are occurring.

Clearing Repeated Paper Jams

1. Check to see that media is correctly loaded in trays and that all width guides are correctly set (not skewed).
2. Try turning over the stack of paper in the tray. if you are using letterhead paper, try printing from Tray 1.
3. Do not use previously printed paper or torn, worn, or irregular paper.
4. Check the media specifications (if outside of the recommended specifications, problems may occur).
5. Printer may be dirty. Clean the printer as described in the first section of this chapter.
6. Check that paper loaded in Tray 1 is NOT longer than 17.7 in (450 mm) or wider than 11.7 in (297 mm). (These are the maximum dimensions that the printer can feed, otherwise the printer will jam.)
7. Ensure that Tray 4 is set for the size of paper installed and that the tray is not overloaded with paper.

Note LaserJet 5Si HM supports 20-53 lb bond paper from trays 2, 3, and 4. The LaserJet 5Si HM also supports index paper, up to 110 lb index media from Trays 2, 3, and 4. When using 16 lb media, the fusing mode can only be "STD PAPER". Otherwise, overheating of media will cause performance issues such as paper jams.

General Troubleshooting Information

Miscellaneous Problems and Solutions

The following lists symtoms and typical solutions to those problems.

Abnormal noises are evident; grinding or chattering when main motor energized.

From EP Area:

1. Replace Toner Cartridge.
2. Replace Main Gear Assembly.

From Tray 2 or 3:

1. Verify proper paper loading, acceptable media.
2. Inspect "fingers" on paper trays to assure proper paper size detection.
3. Replace Paper Input Unit.
4. Replace Main Gear Assembly.

From 2000 Sheet Feeder:

1. Check white plastic bushing on Tray 4. The bushing is located on the Tray 4 main drive assembly (Figure 6-56). The bushing accepts the Tray 4 pilot pin when Tray 4 is closed. Replace if broken.
2. Replace 2000 Sheet Feeder Vertical Transfer Assembly.
3. Replace 2000 Sheet Feeder Main Drive Assembly.

From MultiBin Mailbox:

1. Verify pawls are riding above the output rollers (Figure 7-20).

Won't feed from Tray x when printing from application; PAPER PATH TEST works fine.

Verify correct paper size:

1. Tray 1: From Control Panel TRAY MENU.
2. Tray 2, 3 or 4: Remove and reseat paper fences in correct position in failing tray.

Excessive Image Skew

1 Remove and reseat paper fences (front fence in paper trays).

2 Image Skew Specifications:

- 1 mm over 260 mm length
- First line to leading edge 5.0 +/- 2.5 mm
- Text Stretching 1% simplex 1.5% duplex
- Envelope Skew 6.0 over 260 mm length
- First line to leading edge/ left margin .....15 +/- 4.5 mm

Loses Page Counts, Serial Number.

Confirm that serial number listed on PCL Config, Pages is AAXXYY9999; Print error log. Inspect error log errors for a 68 error with a page count of zero. Using error log, take the page count shown at the top of the page and add the page count from any/all errors preceding any 68 errors. Use this number and enter it into the Front Panel from Service Mode.

Won't print from 2000 Sheet Input Feeder.

1 Print PCL CONFIGURATION PAGES. Verify the Paper Handling Controller and 2000 Sheet Feeder are present under Paper Handling Options.

2 Verify that power is supplied the to the 2000 Sheet Feeder.

3 Run paper path test from Tray 4. If the test is successful, suspect the paper size detection switches for failure or incorrect size specified in the application software.

4 Replace PH Controller if not shown on configuration pages.

5 Verify C-Link cables are connected as shown on Figure 7-7.

6 Reseat C-Link Cable and inspect for pushed in pins.

7 Replace C-Link Cable.

8 Replace 2000 Sheet HCI Controller PCA.

Print Voids on pages after coming out of POWER SAVE mode.

Turn POWER SAVE off (POWER SAVE is an item under the CONFIGURATION MENU) and retry.

Jams when printing envelopes, transparencies, or labels to MultiBin Mailbox or Stapler.

MultiBin Mailbox does not support these media. Direct these media to the Left Output Bin (top bin of MailBox).

Stops printing and hangs on certain jobs.

1. Remove any non HP Memory Simms and retry.
2. Set to 300 DPI and retry.

Top 2/3 of portrait page is lighter.

1. Replace Toner Cartridge and retry.
2. Replace Transfer Guide.

Won't print to Mailbox.

1. Print PCL CONFIGURATION PAGES.Verify the PH Controller, 2000 Sheet Input Feeder, and Mailbox are present under Paper Handling Options.
2. Replace PH Controller if it is not shown on Config Pages.
3. Inspect C-Link Cables for pushed out pins.
4. Replace C-Link Cables.
5. Cable Mailbox direct to printer; if it is now recognized on the PCL CONFIGURATION PAGES, replace 2000 Sheet Input Controller.
6. Replace Mailbox Controller.
7. Replace Mailbox External Power Supply.
8. Replace entire Mailbox.

Wrinkling Envelopes

1. Place Fusing Levers in UP position and retry envelopes.
2. Try new media. Verify Envelopes are within specifications.

See *LaserJet Family Paper Specifications Guide.*

Poor Fusing

1. Verify Fusing Levers are in the down position for cut sheet paper.
2. Verify DC Controller is Revision 2.6 or greater. IC 201 in the middle of the DC Controller should be marked with a -06 for Revision 2.6 DC Controller. See Service Note C3166A-06A.
3. Try new media. Verify Media is within specifications.
4. Verify AC power does not fluctuate out of range during print cycle. See Table 1-7.

See *Laserjet Family Paper Specifications Guide.*

Feeds from incorrect tray when selecting different media for first page of job.

First you must determine if it is a hardware or a software issue. Run a paper path test from each paper tray to eliminate the hardware.

1. Scroll to the TEST MENU from the Control Panel on the printer.
2. Scroll through the TEST MENU to the PAPER PATH TEST
3. Press SELECT.
4. Press the + until it says Input Tray 1.
5. Press [SELECT] twice.
6. Repeat these steps for all input trays.

If paper path test fails, troubleshoot the error message. Verify the most current HP driver is installed.

Select the "Print Quality Tab" from the printer driver. Click on "About". Verify the driver revision is the most current.You may find the most current driver in various electronic locations. Check with HP Service and Support.

If the paper path test works, it may be a software or user related issue. Perform the following steps:

1 Define the media types which are loaded in each paper tray. This can be done from either JetAdmin or the front control panel of the printer.

From JetAdmin

- Select the Trays tab.
- Select the correct media type for each tray listed.
- Click on **OK** save your changes and exit JetAdmin.

From Control Panel:

- Scroll to the TRAY MENU
- Press the Item button to select a specific tray.
- Press + until you get to the correct type of media.
- Press the Select button.
- Repeat this step for each paper tray
- Press the ONLINE key

2 From inside your application, choose the page setup option for that application.

3 Select the paper source / type option.

4 Select the correct media source / type for the first page.

5 Select the correct media source/type for all other pages.

Note You must have the 5Si printer selected in your application in order for your application to provide you with the correct paper tray / media type selections.

Caution

Do not make changes to the driver unless the application does not provide this option. Print job settings selected through your application always override settings made through theprinter driver. Printer settings made in the application or print driver always override the corresponding setting made on the printer Control Panel.

6 Print the document.

Paper Curl

Paper curl is inherent to the laser printing processes, as it occurs when paper is subjected to heat. Paper curl tends to relax as the paper cools while resting on a flat surface. The specification for maximum paper curl when the paper is lying flat before print is 5 mm (0.2 inches).

Although paper curl cannot be totally eliminated, some steps can be taken to lessen its impact, as suggested in the following table.

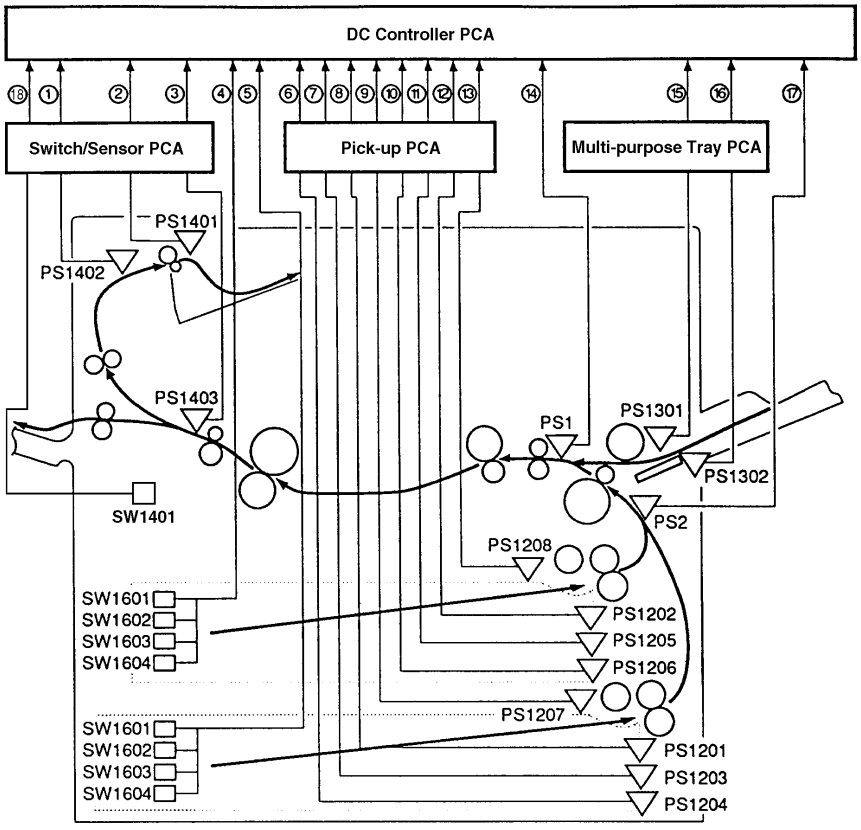
Table 7-23 Paper Curl

Possible Cause	Recommended Action
1. Paper Path	Try using Tray 1 and output the paper to the face up bin.
2. Paper Surface	The recommended printing surface of the page is usually marked on the end of a ream of paper, indicated by a small arrow and the phrase “print this side first.” Load paper in Tray 1 with the recommended **printing surface facing UP** (facing down in Trays 2, 3, and 4).
3. Paper Storing and Handling	Over time, paper assumes the characteristics of its storage environment (in a humid environment, paper absorbs moisture; in a dry environment, paper loses moisture). Paper with higher moisture content will tend to curl more. Evaluate the storage conditions of the paper.
4. Paper Type	All paper is manufactured differently (different textures, moisture content, drying processes, composition, etc.). Change the type of paper being used and re-evaluate the paper curl results.

Diagrams

This section contains the following diagrams:

- Printer Sensors and Switches
- Printer Motor, Clutches, and Solenoids
- DC Controller Inputs and Outputs (5 sheets)
- Main Wiring Diagram (1 sheet, fold-out)
- 2000-Sheet Input Unit Controller PCA Inputs
- 2000-Sheet Input Unit Controller PCA Outputs
- 2000-Sheet Input Unit Main Wiring Diagrams
- Multi-Bin Mailbox Main Wiring Diagram
- Mailbox with Stapler Main Wiring Diagram



① : FACE-DOWN TRAY DELIVERY SENSE signal (/FDOUTS)
② : FACE-DOWN TRAY PAPER FULL SENSE signal (/FDDULS)
③ : FUSING UNIT DELIVERY SENSE signal (FPOUTS)
④ : TRAY 2 PAPER SIZE SENSE signal
⑤ : TRAY 3 PAPER SIZE SENSE signal
⑥ : TRAY 3 PAPER-LEVEL SENSE signal 1 (LVPS1)
⑦ : TRAY 3 PAPER-LEVEL SENSE signal 2 (LVPS2)
⑧ : TRAY 3 SENSE signal (/LDECKC)
⑨ : TRAY 3 PAPER-OUT SENSE signal (/LDECKS)
⑩ : TRAY 2 PAPER-LEVEL SENSE signal 1 (UPVS1)
⑪ : TRAY 2 PAPER-LEVEL SENSE signal 2 (UPVS2)
⑫ : TRAY 2 SENSE signal (/UDECKC)
⑬ : TRAY 2 PAPER-OUT SENSE signal (/UDECKS)
⑭ : REGISTRATION PAPER SENSE signal (/REGS)
⑮ : TRAY 1 PAPER SENSE signal (/MPTPS)
⑯ : LIFTING PLATE SENSE signal (/MPTLS)
⑰ : PICK-UP UNIT PAPER SENSE signal (/FEEDS)
⑱ : TOP/LEFT DOOR OPEN signal (UDOORS)

PS1: Registration paper sensor
PS2: Pick-up unit paper sensor
PS1201: Tray 3 present sensor
PS1202: Tray 2 present sensor
PS1203: Tray 3 paper-level sensor 1
PS1204: Tray 3 paper-level sensor 2
PS1205: Tray 2 paper-level sensor 1
PS1206: Tray 2 paper-level sensor 2
PS1207: Tray 3 paper-out sensor
PS1208: Tray 2 paper-out sensor
PS1301: Tray 1 paper present sensor
PS1302: Lifting plate position sensor
PS1401: Face-down tray paper full sensor
PS1402: Face-down tray delivery sensor
PS1403: Fixing unit delivery sensor
SW1601: Paper-size sensing switch
SW1602: Paper-size sensing switch
SW1603: Paper-size sensing switch
SW1604: Paper-size sensing switch
SW1401: Doors open switch

Figure 7-28 Printer Sensors and Switches (Print Engine Only)

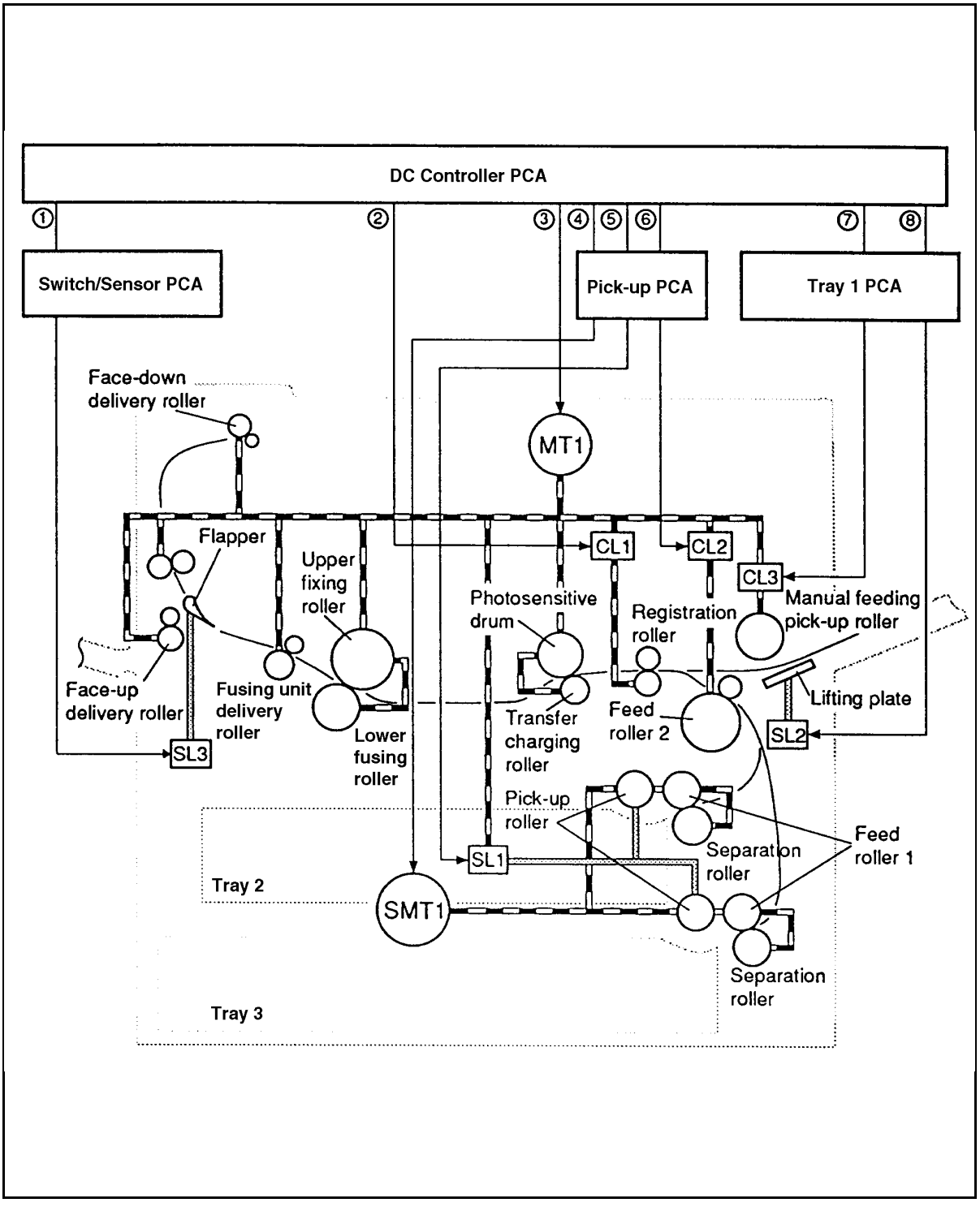


Figure 7-29 Printer Motor, Clutches, and Solenoids

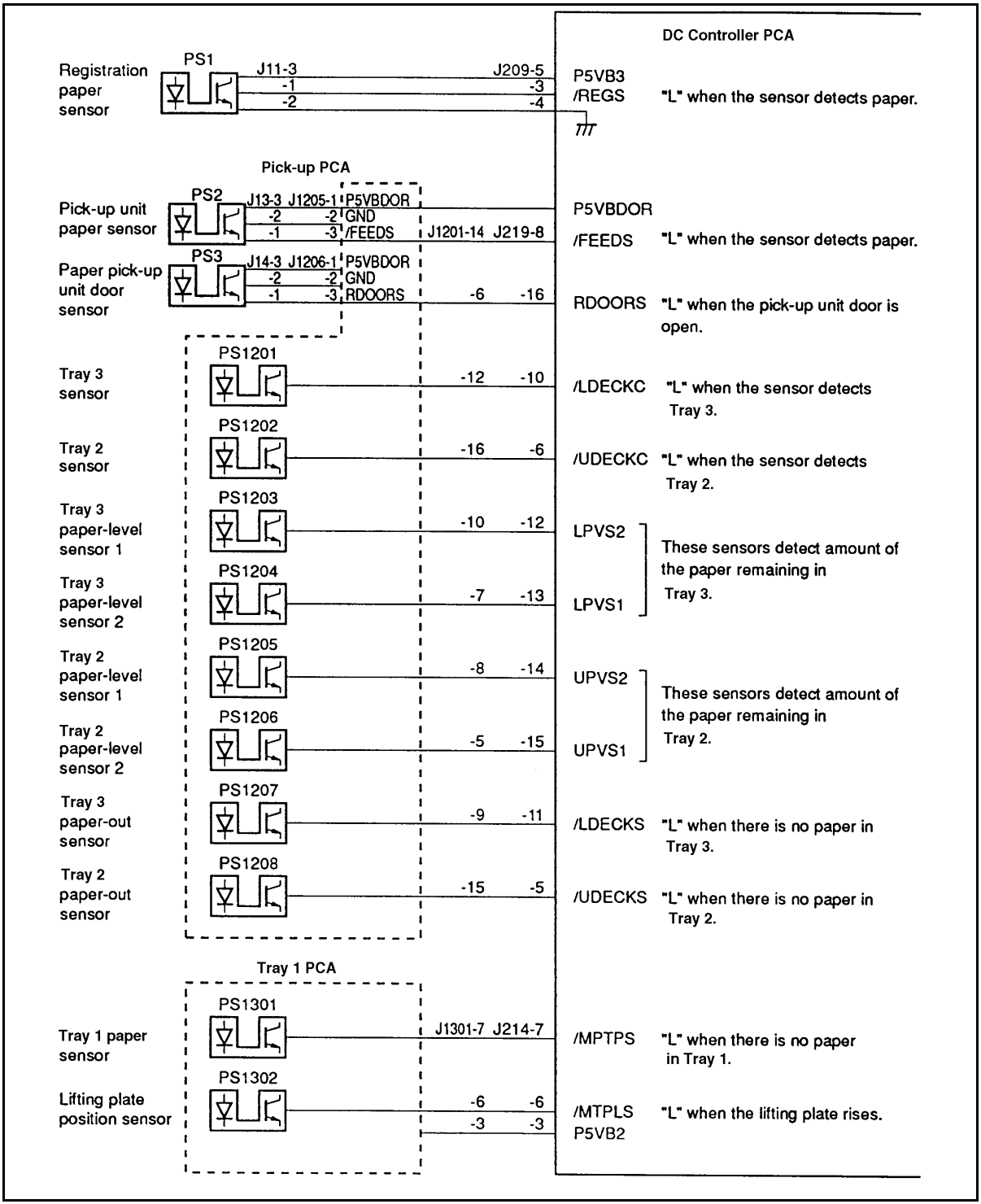


Figure 7-30 DC Controller Inputs and Outputs (1 of 5)

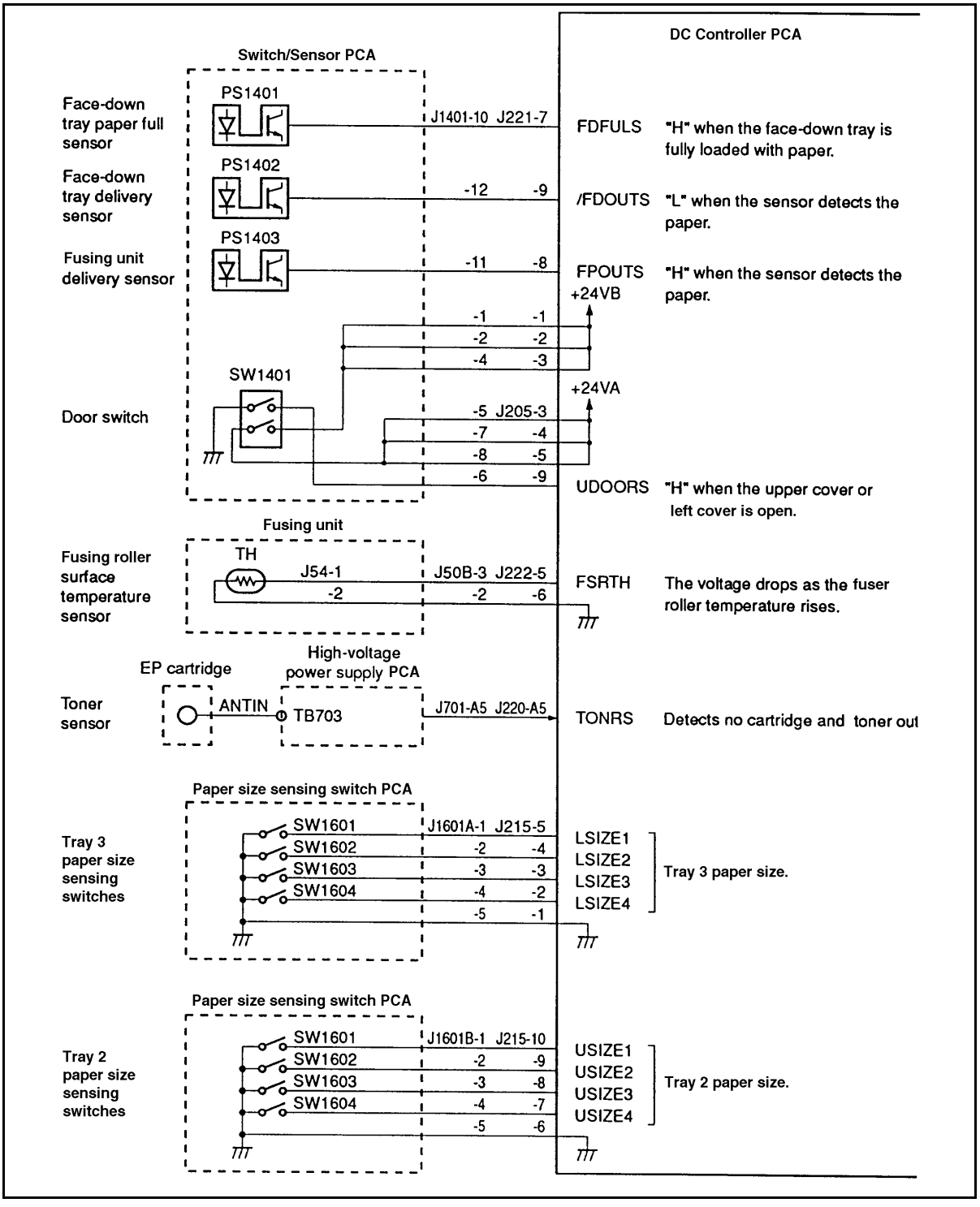


Figure 7-31 DC Controller Inputs and Outputs (2 of 5)

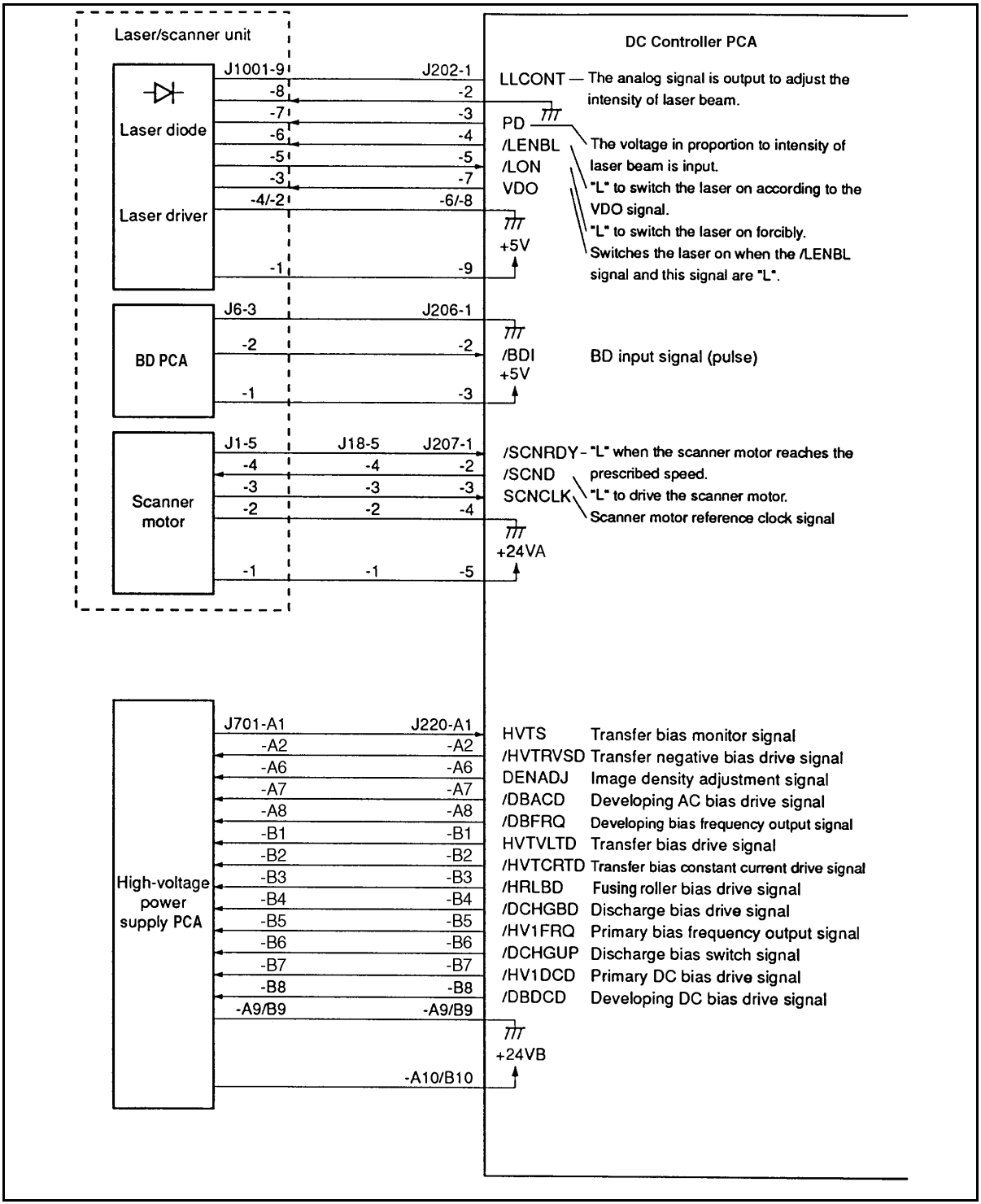


Figure 7-32 DC Controller Inputs and Outputs (3 of 5)

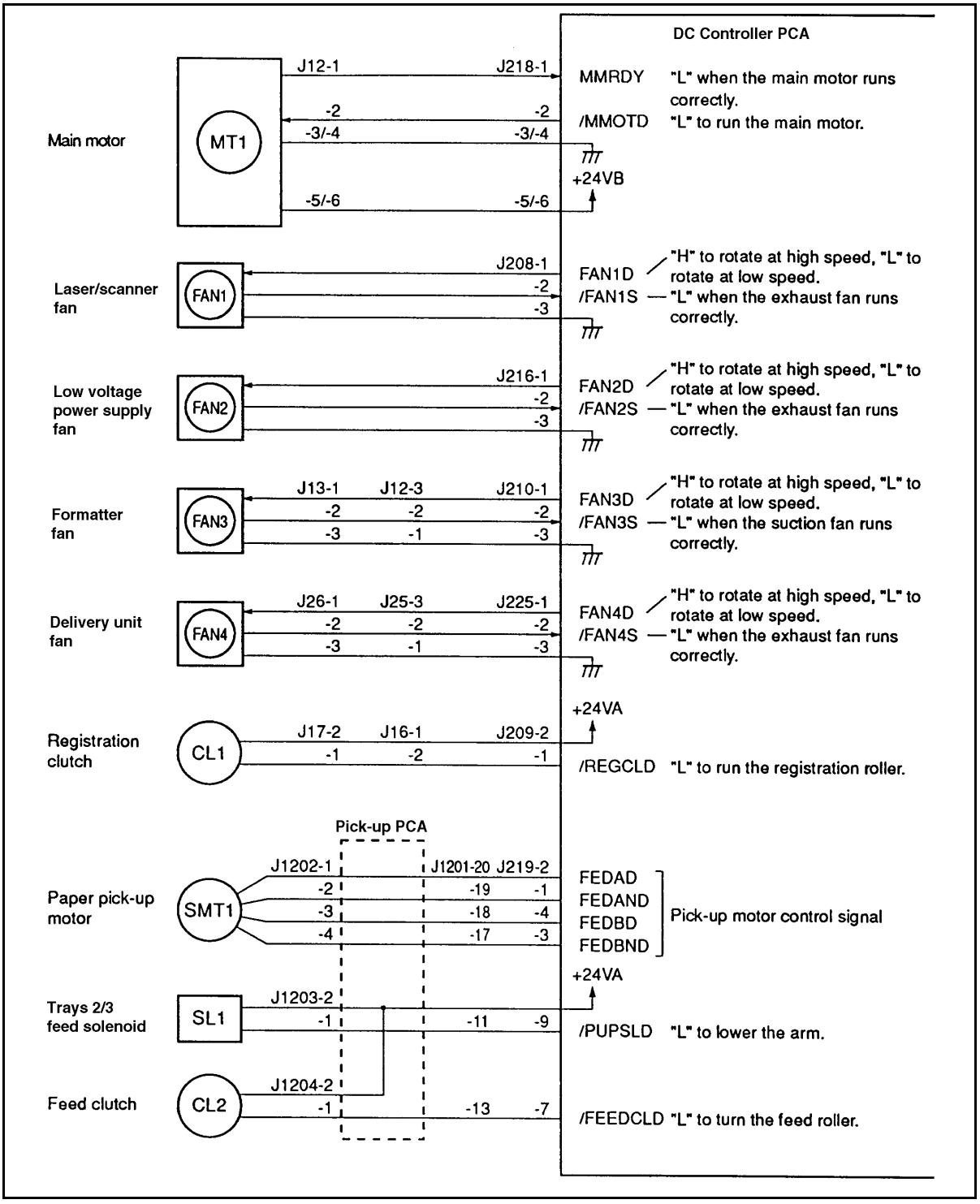


Figure 7-33 DC Controller Inputs and Outputs (4 of 5)

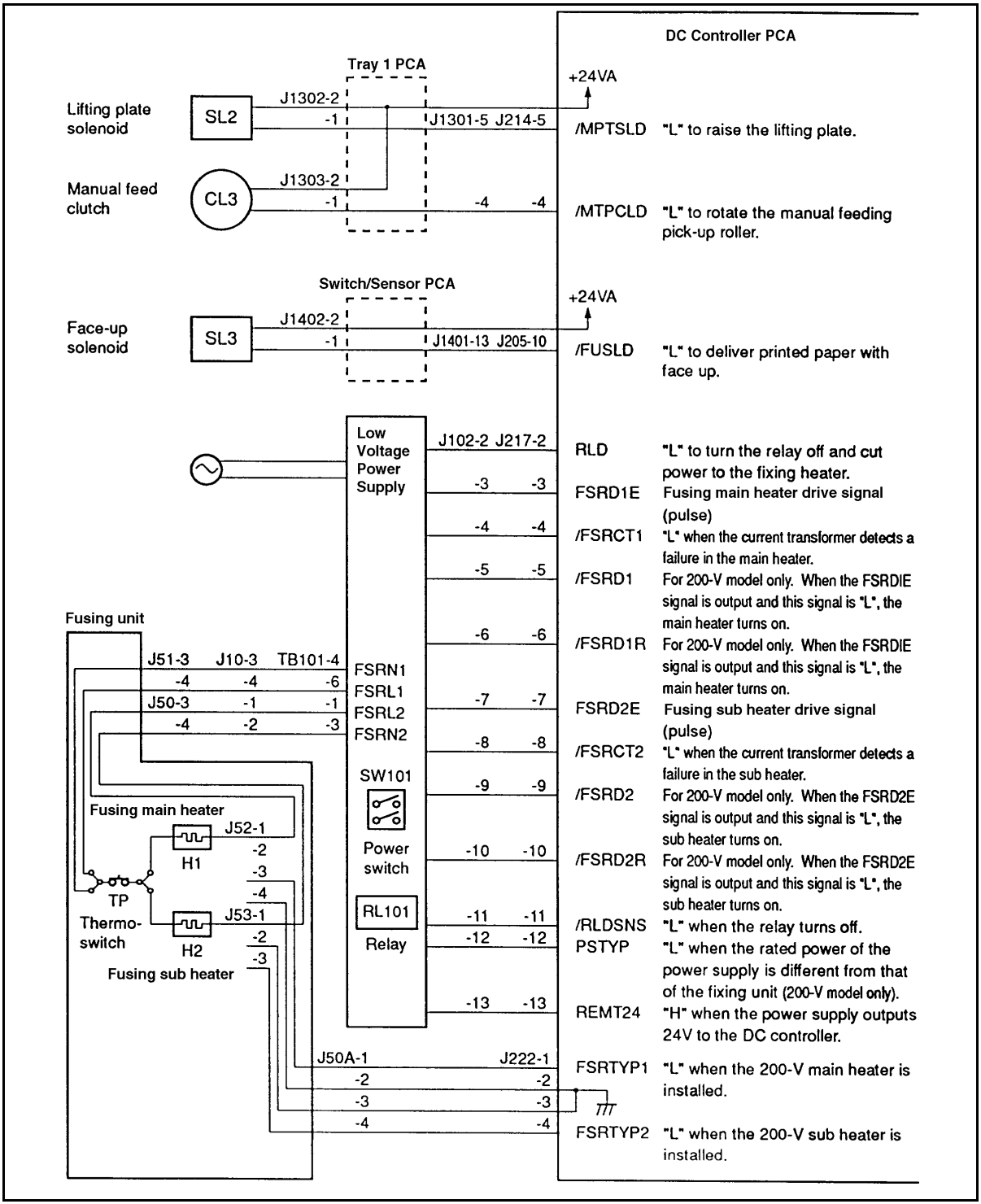


Figure 7-34 DC Controller Inputs and Outputs (5 of 5)

Figure 7-35 Printer Main Wiring Diagram

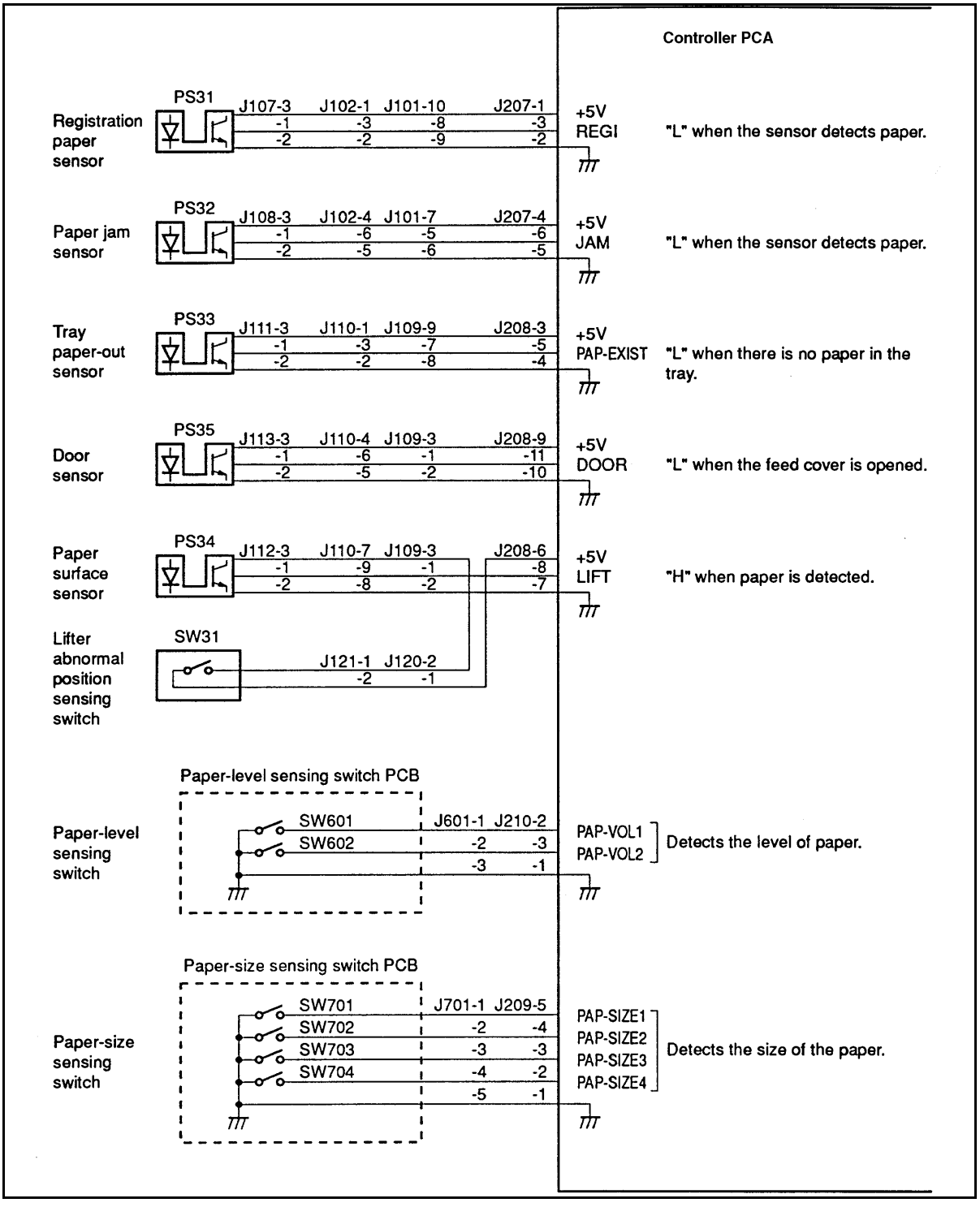


Figure 7-36 2000-Sheet Input Unit Controller PCA Inputs

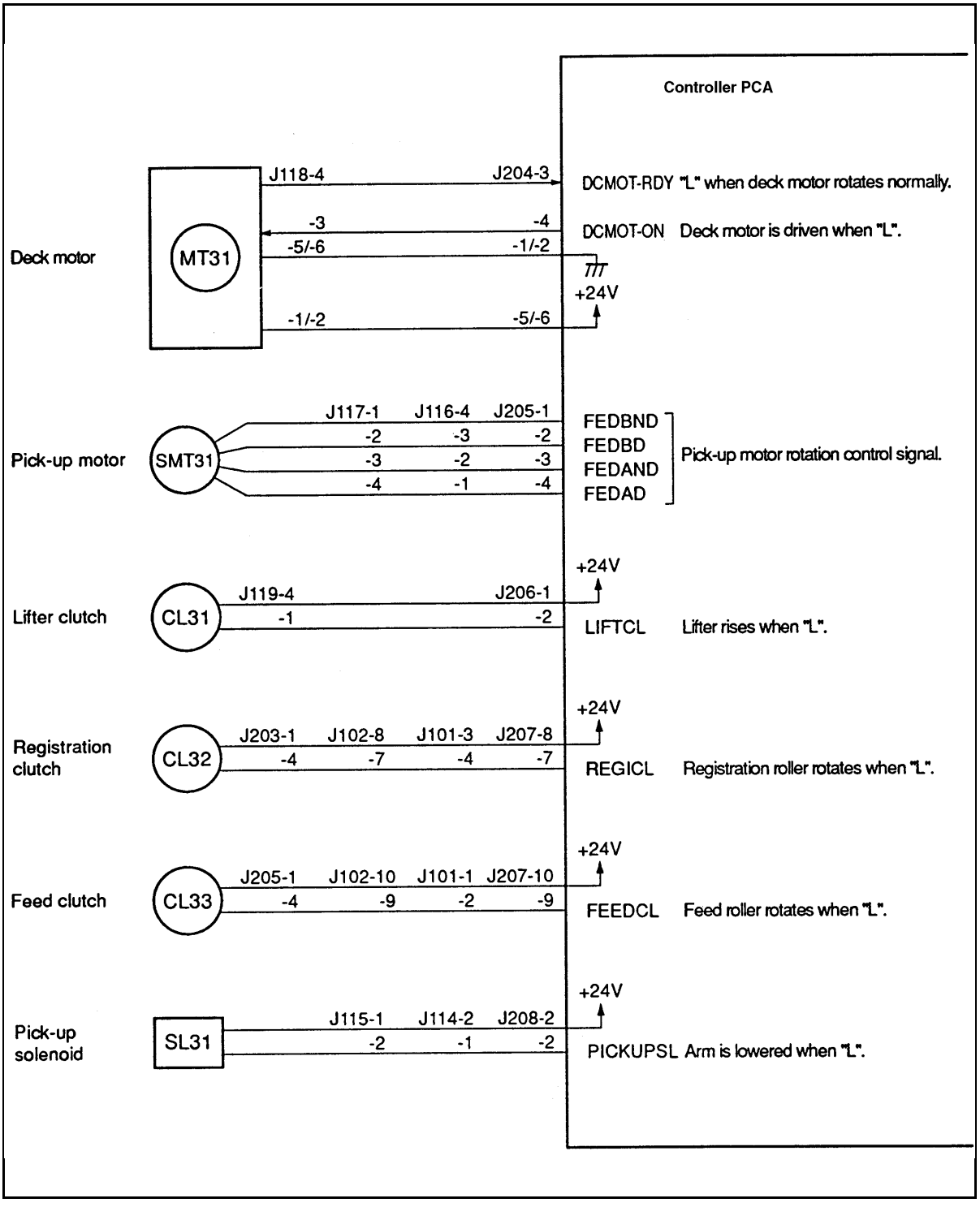


Figure 7-37 2000-Sheet Input Unit Controller PCA Outputs

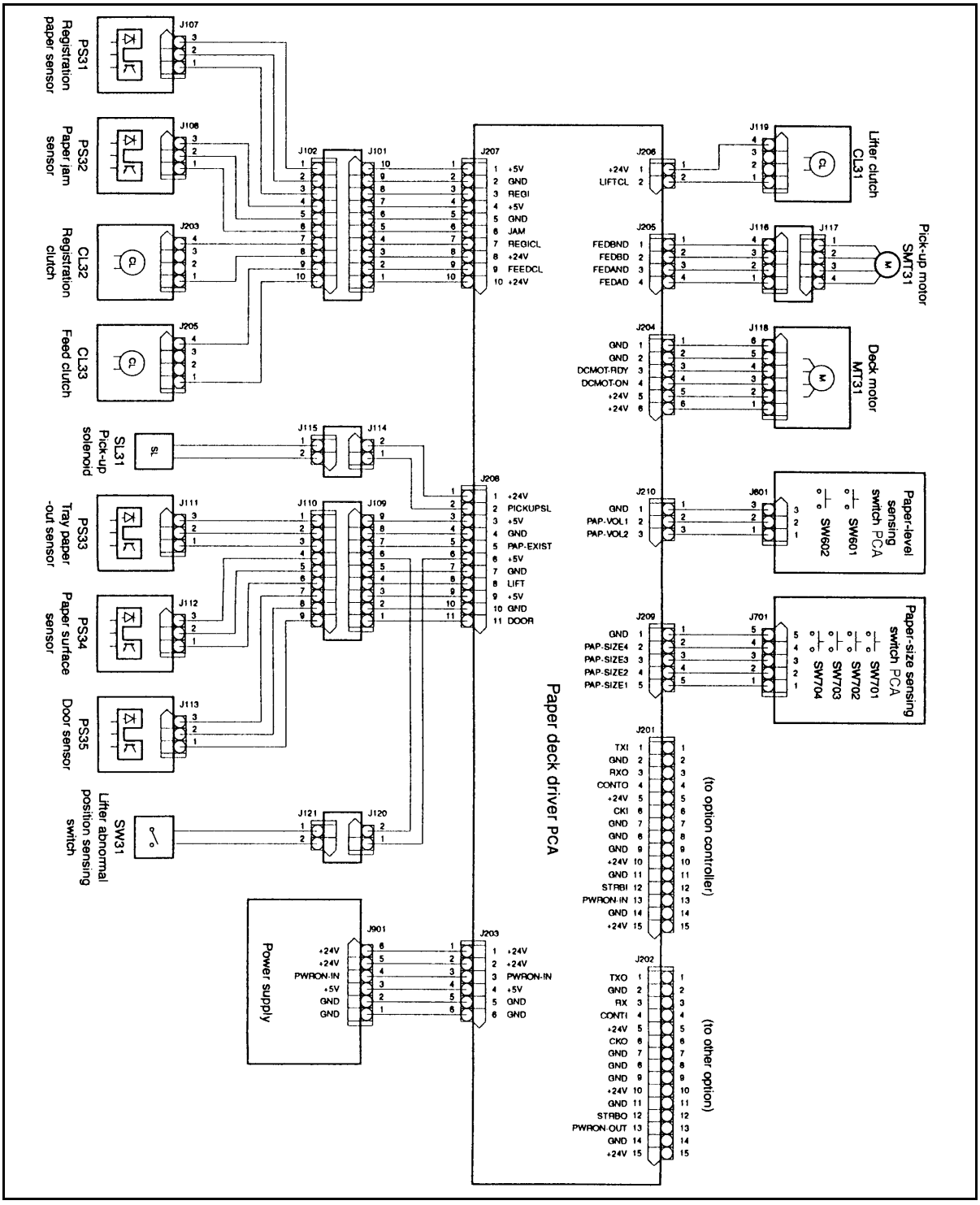


Figure 7-38 2000-Sheet Input Unit Main Wiring Diagram

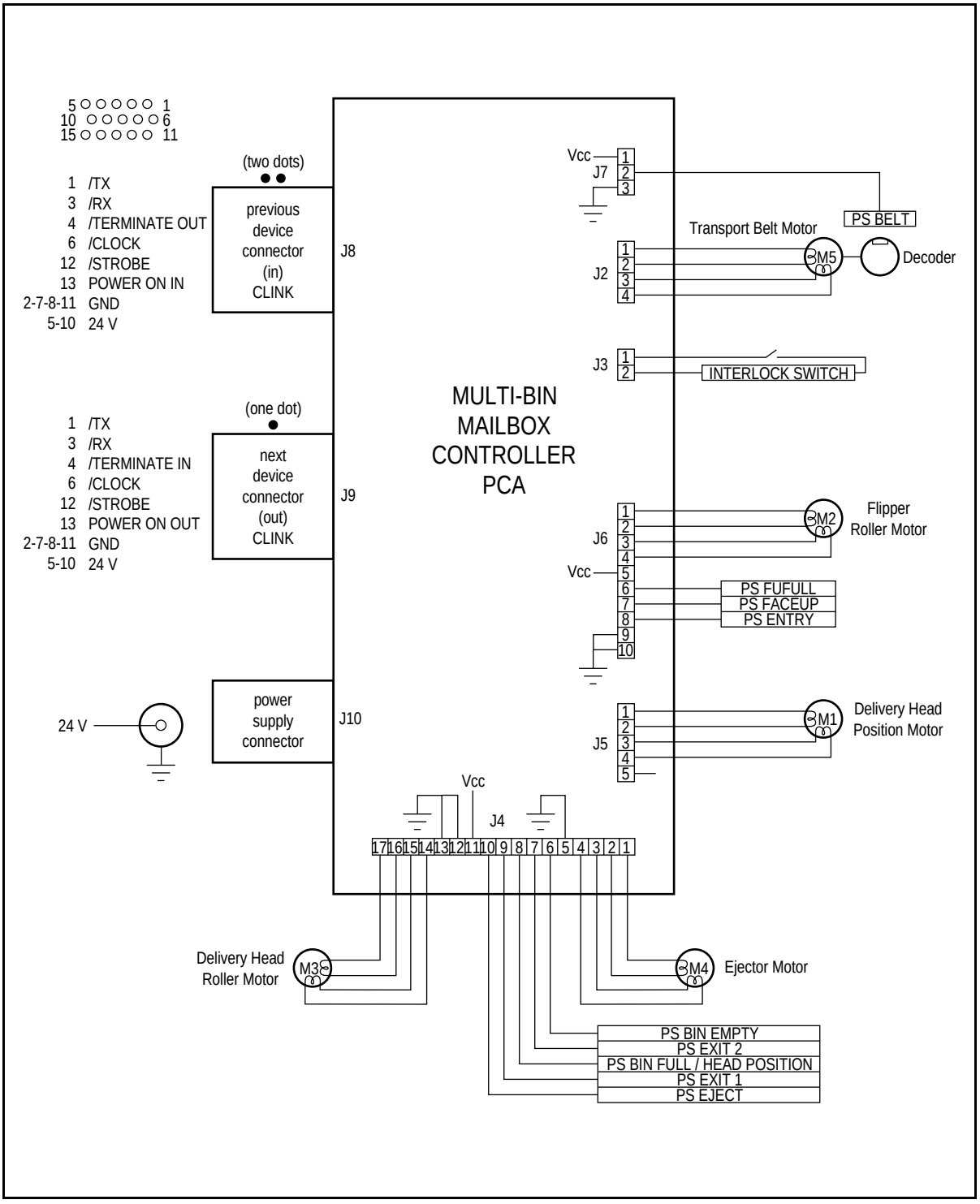


Figure 7-39 Multi-Bin Mailbox Main Wiring Diagram

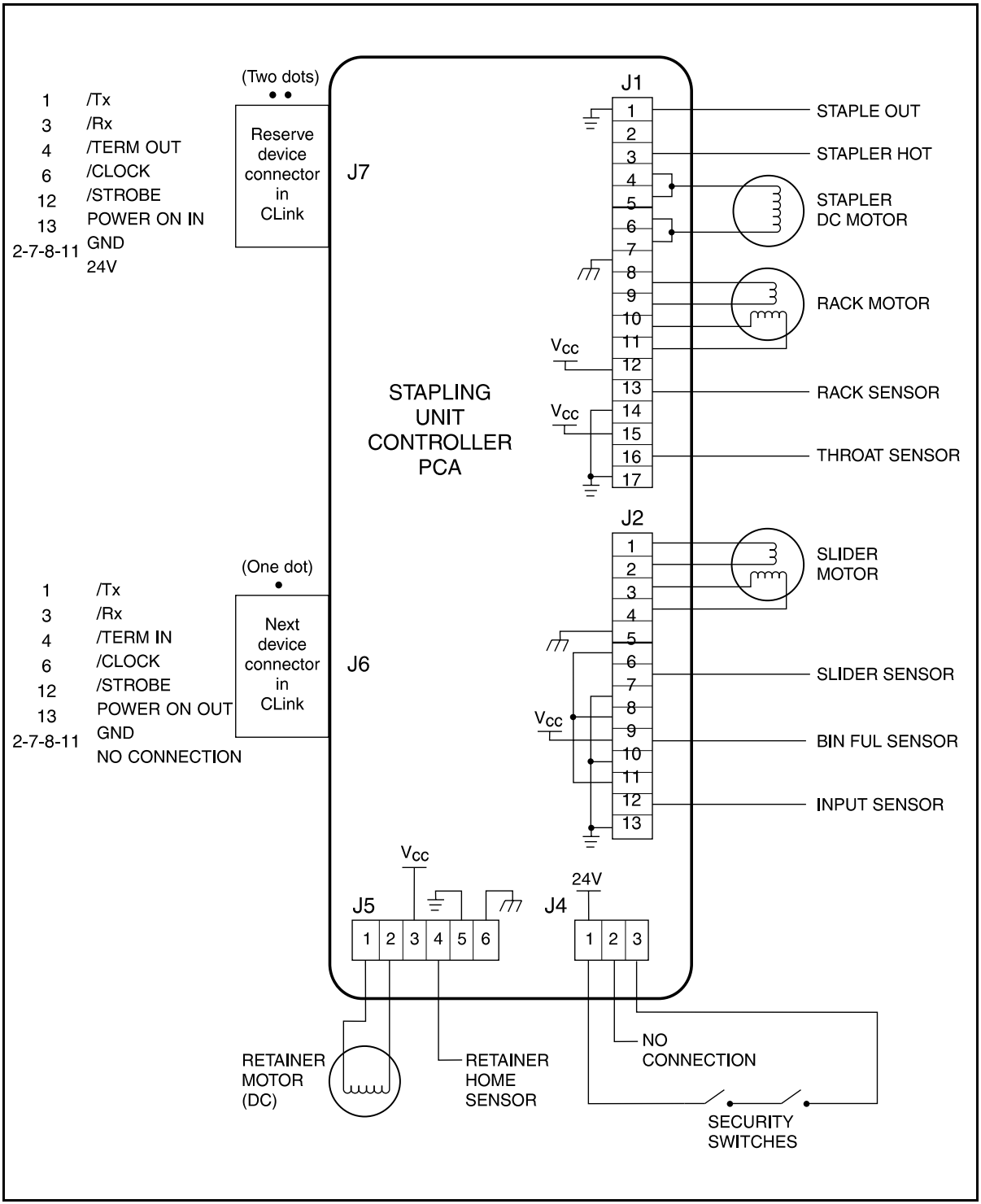


Figure 7-40 Stapling Unit Controller PCA Main Wiring Diagram

8

Parts and Diagrams

Chapter Contents

How to Use the Part Lists and Diagrams 8-3
Ordering Parts 8-3
Accessories and Supplies 8-4
Common Hardware 8-4
Illustrations and Parts Lists 8-5

How to Use the Part Lists and Diagrams

The figures in this chapter illustrate the major subassemblies in the printer and their component parts. A table (material list) follows each exploded assembly diagram. Each table lists the reference designator (item number) for each part, the associated part number for the item, the quantity, and a description of the part.

While looking for a part number, pay careful attention to the voltage listed in the description column to ensure that the part number selected is for the correct model of printer.

Ordering Parts

All standard part numbers listed are stocked and may be ordered from HP's support Materials Organization (SMO), or Support Materials Europe (SME).

Hewlett-Packard Co. Support Materials Organization 8050 Foothills Blvd. Roseville, CA 95678 Parts Direct Ordering 1-800-227-8164 (U.S. Only)
Hewlett-Packard Co. Support Materials, Europe Wolf-Hirth Strasse 33 D-7030 B"blingen, Germany (49 7031) 14-2253

Contact your local HP Parts Coordinator for other local phone numbers.

Accessories and Supplies

The accessories, supplies, and parts listed in Chapter 1 and in the following pages are available through your local authorized HP dealer. To find a dealer near you (or if your dealer is temporarily out of stock), call the HP Customer Information Center (800) 752-0900 (U.S. Only).

Note

Refer to "Related Documentation" in Chapter 1 for documentation and training media product numbers.

Common Hardware

Refer to Table 6-1 in Chapter 6 listing the common hardware used in the printer.

Illustrations and Parts Lists

The following illustrations and their assorted parts tables list the field replaceable components for this printer. Where applicable, the exchange part number is listed immediately following the original equipment part numbers. Appendix A provides two cross-reference tables of all the parts listed in this chapter: Table A-1 lists the parts in alphabetical order, and Table A-2 lists the parts in numerical order. Both tables are cross-referenced to the appropriate figure and reference designator in this chapter.

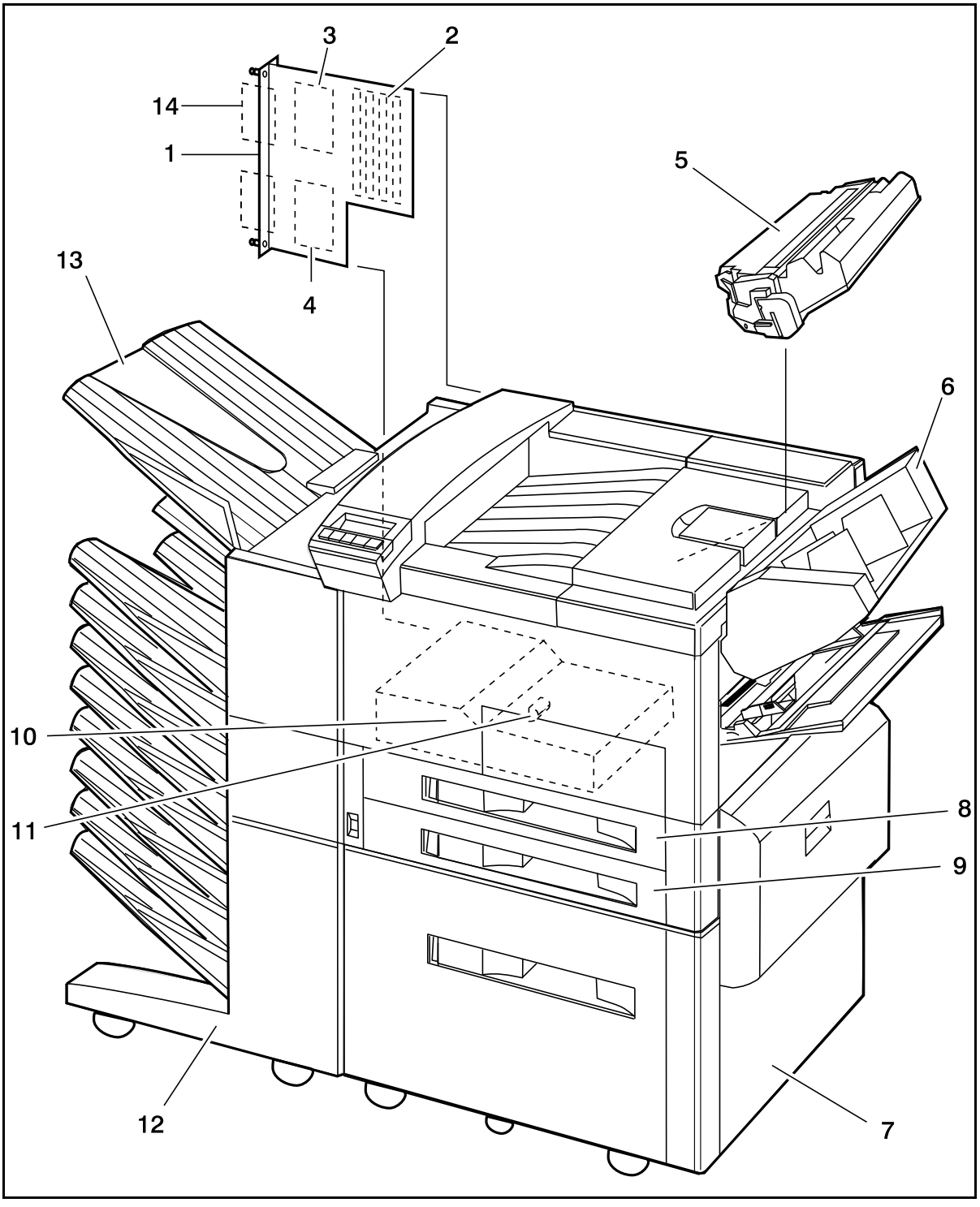


Figure 8-1a LJ 5Si Family Printer and Paper Handling Components

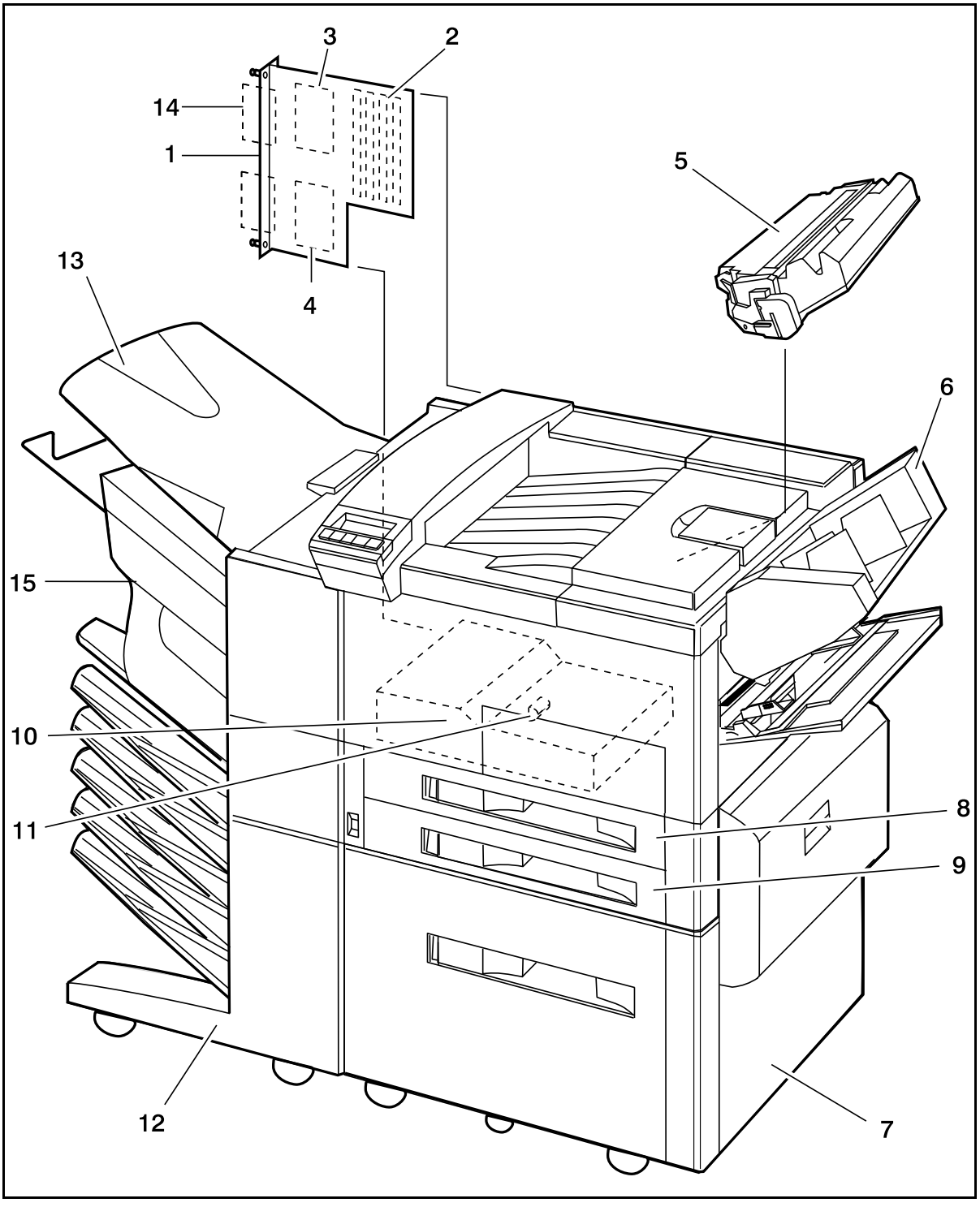


Figure 8-1b LJ 5Si Mopier Family and Paper Handling Components

Table 8-1 Printer and Paper Handling Components

Ref	Description/Product Number	Part Number	Exchange /Service Number	QTY
01	Formatter Assembly	C3168-67905		
01A	Formatter Assembly, Exchange		C3168-69005 (ex.)	
01	Formatter Assembly, Heavy Media		C3125-60001 (serv.)	
02	PostScript SIMM/C3169A		C3169-69001 (ex.)	
03	420 MB Disk Drive/C2965A			1
03A	420 MB Disk Drive, Exchange		C2965-69001 (ex.)	
not shown	420 MB Disk Left Mounting Bracket	C2965-40001		
not shown	420 MB Disk Right Mounting Bracket	C2965-40002		
not shown	420 MB Disk Cable Assembly	C2965-60004		
04	External Paper Handling Controller PCA	C3768-60501		1
05	Toner Cartridge/C3909A			
06	Envelope Feeder/C3765A		C3765-60501(serv.)	1
07	2000-Sheet Input Unit (Tray 4)/C3763A		C3763-69501 (ex.) C3763-60501 (serv.)	1
08	Tray 2/C2931A	R77-0004-000CN		1
09	Tray 3/C2930A	R77-0003-000CN		1
not shown	Paper Size Guide (Trays 2 and 3)	RF5-1484-000CN		1
not shown	Paper Size Guide Label (Trays 2 and 3)	RS5-8605-000CN		1
10	Duplex Unit/C3762A		C3762-60501 (serv.)	1
10	Duplex Unit, Heavy Media		C4178-69001 (ex.)	
11	Duplex Unit Roller 1	RB1-6822-000CN		1
12	8 bin Multi Bin/C3764A 5 bin Mailbox for Stapler/C3774A		C3764-69100 (ex.) C3766-69515 (ex.)	1
13	Face-Up Bin	RB1-6491-000CN		1
14	MIO Coverplate	C2009-00006		
15	Stapling Unit	C3766-60500	C3766-69500 (ex.)	1
not shown	Packaging Kit, Printer	C3166-67905		
not shown	Packaging Kit, Duplex Unit	C3762-60500		
not shown	Packaging Kit, 2000-Sheet Input Unit	C3763-60500		
not shown	Packaging Kit, Multi-Bin Mailbox	C3764-60500		
not shown	Packaging Kit, Envelope Feeder	C3765-60500		
not shown	Maintenance Kit, 100-120V/C3971A		C3971-69001 (ex.)	
not shown	Maintenance Kit, 220-240V/C3972A		C3972-69001 (ex.)	

Table 8-1 Printer and Paper Handling Components (continued)

Ref	Description/Product Number	Part Number	Exchange /Service Number	QTY
not shown	C-Link Cable Assembly 178 cm (HCI to MBM)	C3764-70000		
not shown	C-Link Cable Assembly 61 cm (Engine to HCI)	C3763-70000		
not shown	C-Link Cable Assembly 97 cm (MBM to Stapler)	C3766-60512		
not shown	Stapler Cartridges (3-pack)/C3772A			
not shown	3 Way Power Adapter	C4077-60102		

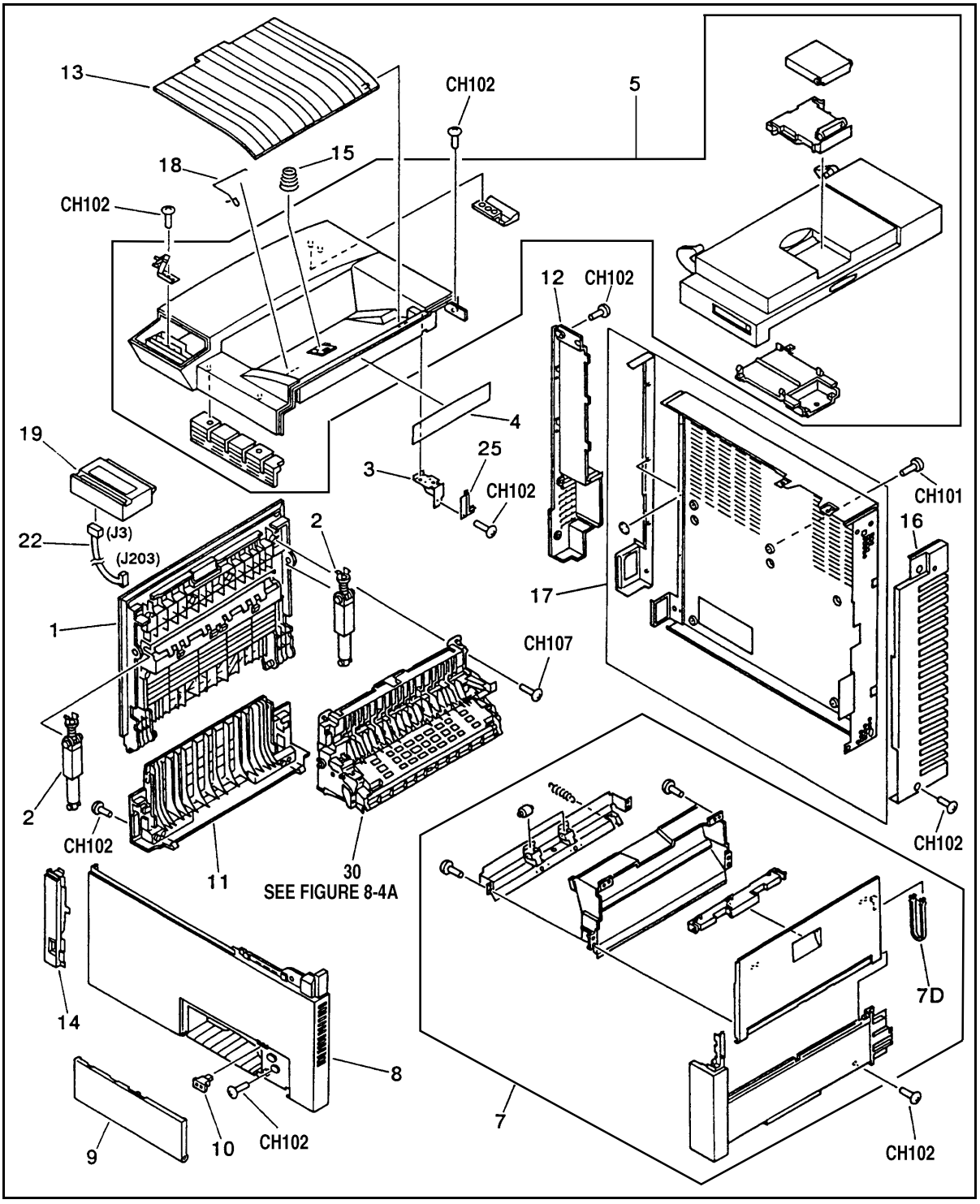


Figure 8-2 Printer Covers and Doors

Table 8-2 Printer Covers and Doors

Ref	Description	Part Number	QTY
01	Left Access Door	RB1-6667-000CN	1
02	Left Access Door Struts	RF5-1440-000CN	2
03	Hinge Plate	RB1-6507-000CN	1
04	Label, Operation (Special Order)	RS5-8596-000CN	1
05	Cover Assembly	RG5-1870-000CN	1
07	Right Cover Assembly	RG5-1915-040CN	1
07D	Open / Close Stopper	RB1-6484-000CN	1
08	Front Cover	RB1-6494-000CN	1
09	Front Door	RB1-6495-000CN	1
10	Front Door Latch	XZ9-0379-000CN	1
11	Cover, Left Lower (Special Order)	RB1-6480-000CN	1
12	AC Access Cover	RB1-6489-000CN	1
13	Face-Up Bin (Special Order)	RB1-6490-000CN	1
14	Cover, Switch (Special Order)	RB1-6492-000CN	1
15	Spring, Compression (Special Order)	RB1-6493-000CN	1
16	Right, Lower Cover (Rear Plastic on Sheet Metal)	RB1-6498-000CN	1
17	Rear Cover	RF5-1402-000CN	1
18	Spring, Torsion (Special Order)	RB1-6509-000CN	1
19	Front Panel (Control Panel Display)	RG5-2433-000CN	1
22	Cable Assembly	RG5-1924-000CN	1
25	Plate Guard	RB1-6522-000CN	1
30	Diverter Assembly	RG9-1150-000CN	1
CH101	Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	6
CH102	Screw, TP, M3X6 (floating flat and lock washer)	XA9-0547-000CN	13
CH107	Screw, tapping, pan head, M4X10	XB4-7401-009CN	6

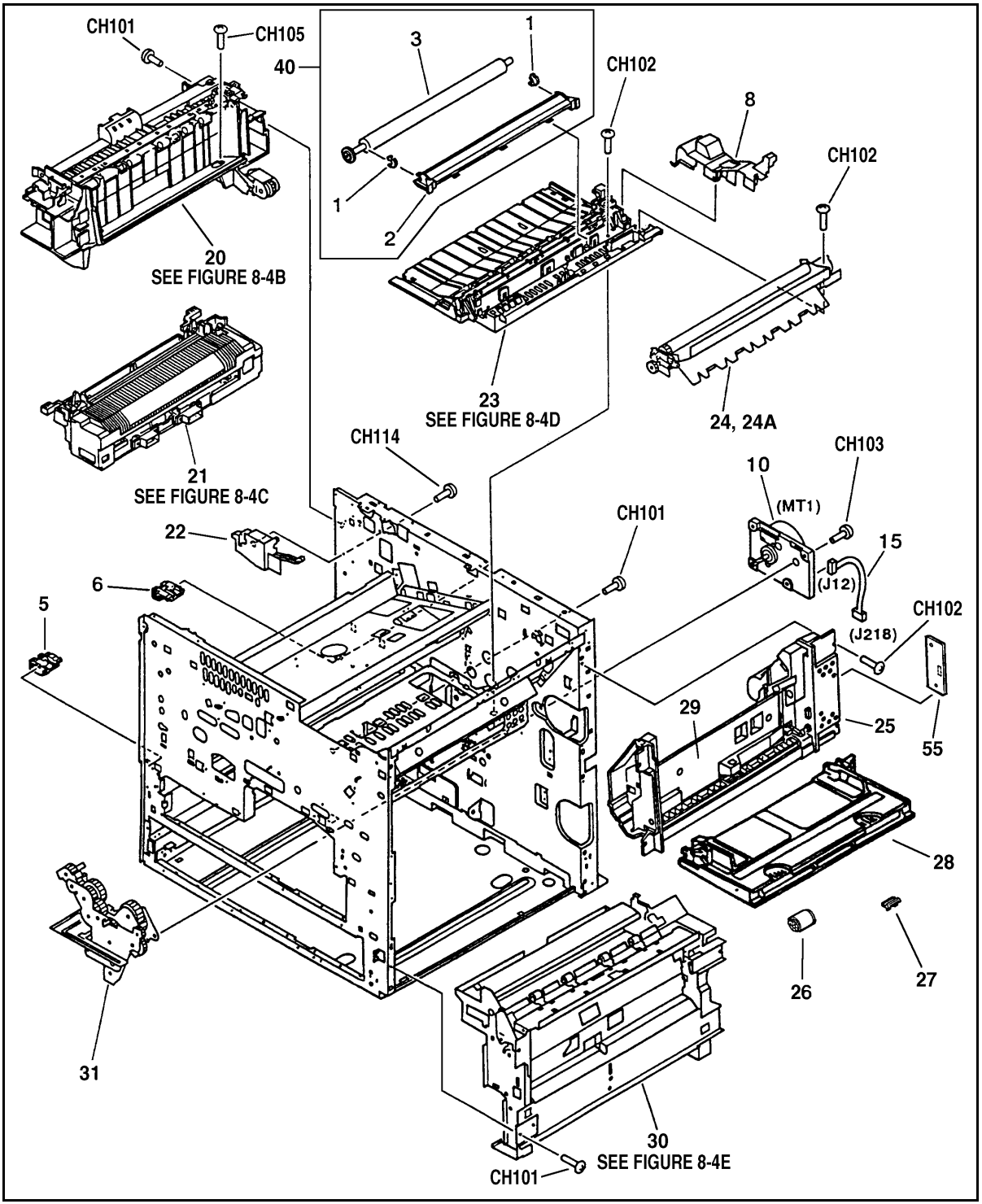


Figure 8-3 Printer Internal Components (1 of 4)

Table 8-3 Printer Internal Components (1 of 4)

Ref	Description	Part Number	QTY
01	Transfer Guide Bushing	RB1-6441-000CN	2
02	Transfer Guide	RF5-1394-000CN	1
03	Transfer Roller	RF5-1412-000CN	1
05	Damper Holder (Front)	RB1-6461-000CN	1
06	Damper Holder (Rear)	RB1-6462-000CN	1
08	Clutch Cover	RB1-6468-000CN	1
10	Main Motor	RH7-1260-000CN	1
15	Main Motor Cable	RG5-1919-000CN	1
20	Face-Down Delivery Assembly	RG5-1874-000CN	1
21A	Fusing Assembly 100-120V	RG5-1863-200CN	1
21B	Fusing Assembly 220-240V	RG5-1871-190CN	1
21C	Fusing Assembly 100-120V, Exchange	C3166-69001	
21D	Fusing Assembly 220-240V, Exchange	C3166-69013	
22	Face -Up Solenoid Assembly	RG5-1875-000CN	1
23	Feeder Assembly	RG5-1834-000CN	1
24	Registration Assembly	RG5-1833-040CN	1
24A	Electromagnetic Clutch	RH7-5119-000CN	1
25	Tray 1 Pick-up Assembly	RG5-1880-100CN	1
26	Tray 1 Feed Roller	RB1-6730-000CN	1
27	Tray 1 Separation Pad	RF5-1455-000CN	1
28	Tray 1 Door	RG5-1883-000CN	1
29	Tray 1 Internal Cover (Shield)	RB1-6749-000CN	1
30	Paper Input Unit (PIU)	RG5-1852-160CN	1
30A	Paper Input Unit (PIU), Exchange	C3166-69011	
31	Main Gear Assembly	RG5-1847-000CN	1
40	Transfer Roller Assembly	RG5-1887-000CN	1
55	Tray 1 PCA	RG5-1884-000CN	1
CH101	Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	10
CH102	Screw, TP, M3X6 (floating flat and losk washer)	XA9-0547-000CN	8
CH103	Screw, M4X8	XB6-7400-807CN	4
CH105	Screw, w/washer, M3X20	XA9-0817-000CN	2
CH114	Screw, tapping, M4X8	XA9-0605-000CN	2
not shown	Heavy Media PIU (only compatible with C3124A)	C3124-60001	1
not shown	Registration, Heavy Media (only compatible with C3124A)	C3124-60002	1

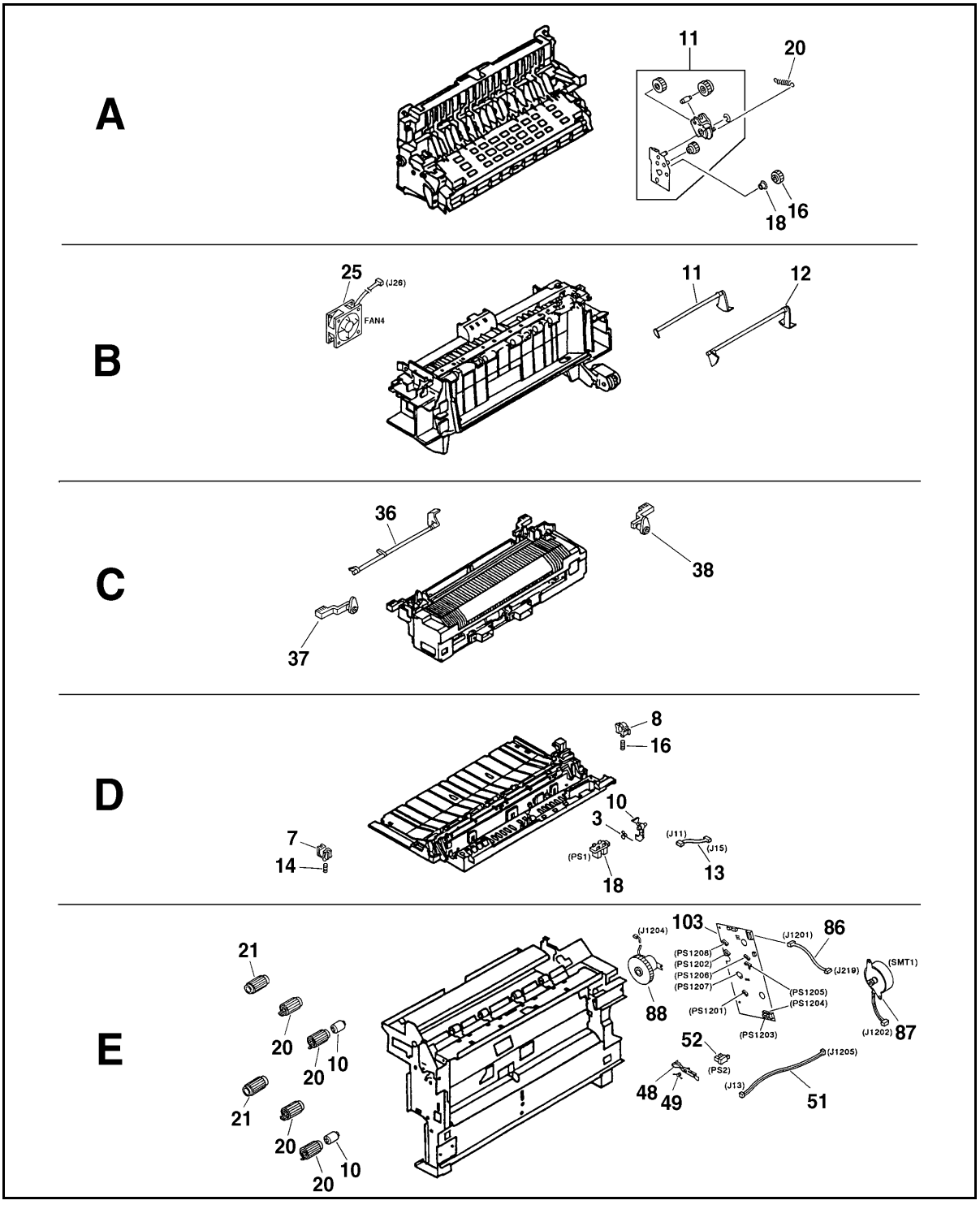


Figure 8-4 Printer Internal Components (2 of 4)

Table 8-4 Printer Internal Components (2 of 4)

Fig	Ref	Description	Part	Qty
8-04	A	Diverter Assembly	RG9-1150-000CN	
8-04A	11	Diverter Drive Assembly	RF5-1441-000CN	1
8-04A	16	20T Gear	RS5-0758-000CN	1
8-04A	18	Conductive Bushing	RS5-1101-000CN	1
8-04A	20	Tension Spring	RS5-2490-000CN	1
8-04B	11	Paper Sensing Lever	RB1-6692-000CN	1
8-04B	12	Paper Height Lever	RB1-6693-000CN	1
8-04B	25	Fan 4	RH7-1289-000CN	1
8-04	C	Fuser Assembly 110V, Exchange	C3166-69001	
8-04	C	Fusing Assembly 220-240V, Exchange	C3166-69013	
8-04C	36	Fuser Flag	RB1-6614-000CN	1
8-04C	37	Fuser Lock Lever Right	RB1-6615-000CN	1
8-04C	38	Fuser Lock Lever Left	RB1-6616-000CN	1
8-04	D	Feeder Assembly	RG5-1834-000CN	
8-04D	03	Sensor Arm Spring	RB1-6409-000CN	1
8-04D	07	Block, Shaft Holding, Front	RB1-6414-000CN	1
8-04D	08	Block, Shaft Holding, Rear	RB1-6415-000CN	1
8-04D	10	Sensor Arm PS1	RB1-6417-000CN	1
8-04D	13	Sensor Cable	RG5-1843-000CN	1
8-04D	14	Compression Spring, Front	RS5-2463-000CN	1
8-04D	16	Compression Spring, Rear	RS5-2466-000CN	1
8-04D	18	Photo Interrupter	WG8-0291-000CN	1
8-04	E	Paper Input Unit (PIU)	C3166-69011	
8-04E	10	Torque Limiter	RB1-6588-000CN	2
8-04E	103	PIU PCA	RG5-1860-000CN	1
8-04E	20	Feed / Separation Rollers	RF5-1426-000CN	4
8-04E	21	Pickup Roller	RF5-1427-000CN	2
8-04E	48	Sensor Arm PS2	RB1-6557-000CN	1
8-04E	49	Sensor Arm Spring	RB1-6558-000CN	1
8-04E	51	Sensor Cable	RG5-1859-000CN	1
8-04E	52	Photo Interrupter	WG8-0291-000CN	1
8-04E	86	Paper Pickup Cable	RG5-1861-000CN	1
8-04E	87	Pick-Up Motor	RH7-1262-000CN	1

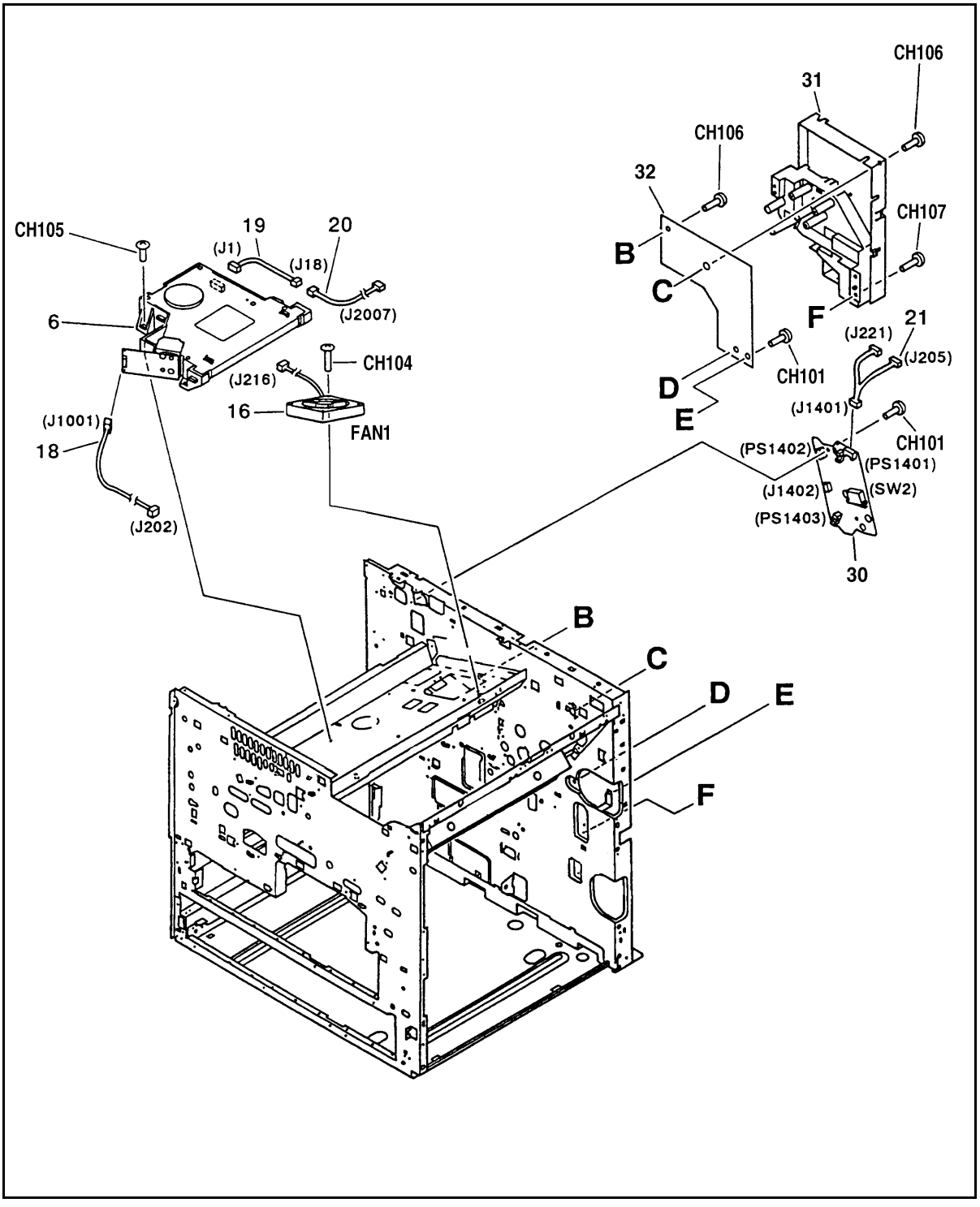


Figure 8-5 Printer Internal Components (3 of 4)

Table 8-5 Printer Internal Components (3 of 4)

Ref	Description	Part Number	QTY
06	Laser / Scanner Assembly	RG5-1895-000CN	1
06A	Laser / Scanner Assembly, Exchange	C3166-69006	
16	Fan 1	RH7-1266-000CN	1
18	Cable Assembly	RG5-1924-000CN	1
19	Scanner Motor Cable	RG5-1925-000CN	1
20	BD Cable	RG5-1926-000CN	1
21	ILS Cable	RG5-1927- 000CN	1
30	Switch / Sensor PCA	RG5-1846-000CN	1
31	High Voltage Power Supply	RG5-1888-000CN	1
31A	High Voltage Power Supply, Exchange	C3166-69005	
32	DC Controller PCA	RG5-1844-050CN	1
32A	DC Controller PCA, Exchange	C3166-69010	
CH101	Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	8
CH104	Screw, CT, M3X3	XB5-7303-007CN	2
CH105	Screw, w/washer, M3X20	XA9-0817-000CN	4
CH106	Screw, tapping, truss head, M3X8	XB4-7300-809CN	3
CH107	Screw, tapping, pan head, M4X10	XB4-7401-009CN	3
*	Thermal Control PCA	C3125-60002	1
*	Thermal Control PCA Cable	C3125-00001	1

* LaserJet 5Si HM (C3124A) only.

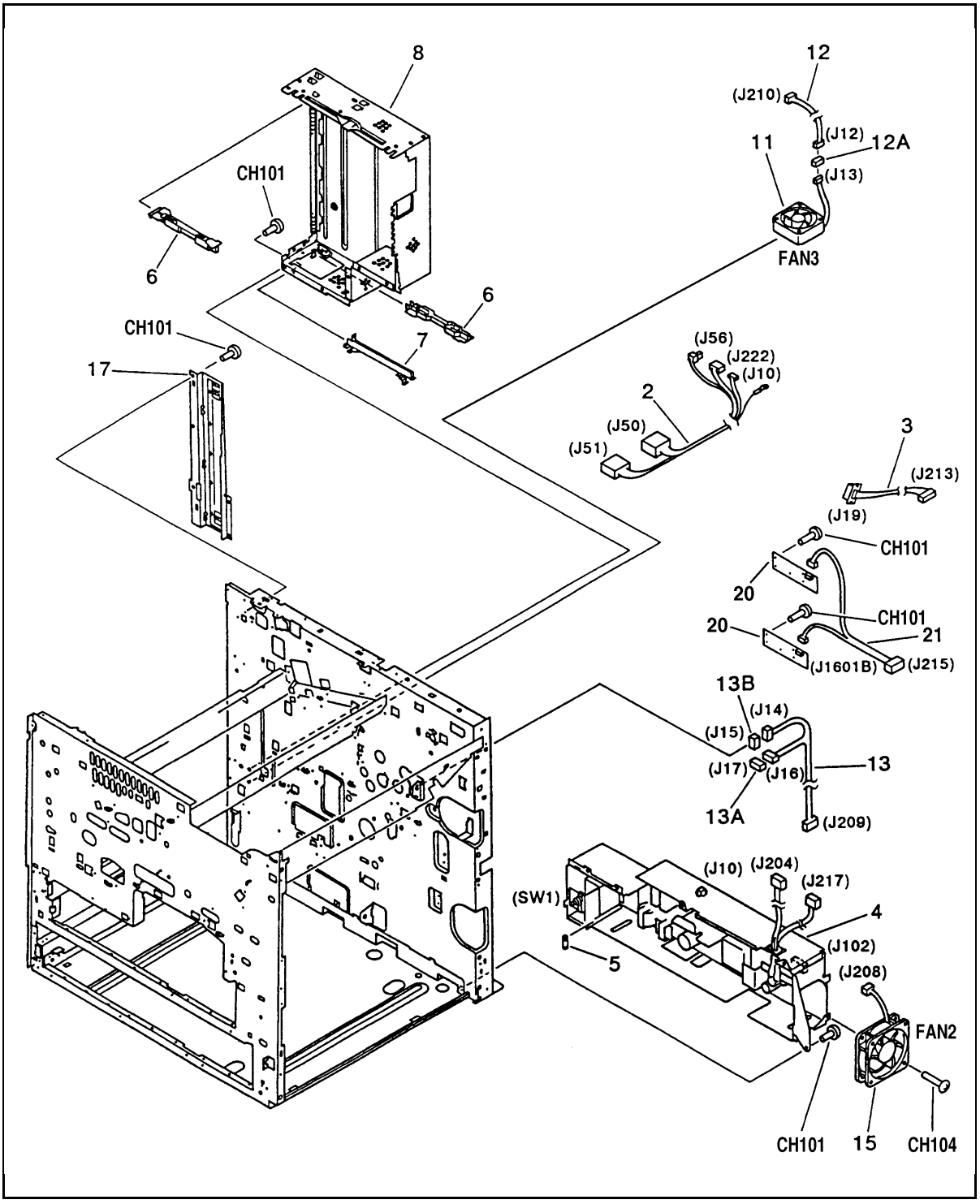


Figure 8-6 Printer Internal Components (4 of 4)

Table 8-6 Printer Internal Components (4 of 4)

Ref	Description	Part Number	QTY
02	Fuser Cable 1	RG5-1849-000CN	1
03	Fuser Cable 2	RG5-1850-000CN	1
04A	Low Voltage Power Supply, 110-120V	RG5-1876-000CN	1
04B	Low Voltage Power Supply, Universal	RG5-1878-000CN	1
04C	Low Voltage Power Supply, 110-120V, Exchange	C3166-69007	1
04D	Low Voltage Power Supply, Universal, Exchange	C3166-69008	1
05	Fuse, LVPS, 110-120V	VD5-0056-301CN	1
05A	Fuse, LVPS, Universal	VD7-0646-301CN	1
06	Guide, PCA	RB1-6771-000CN	1
07	Guide, Slide	RB1-6775-000CN	1
08	Formatter Shield	RF5-1466-000CN	1
11	Fan 3	RH7-1271-000CN	1
12	Fan 3 Cable	RG5-1921-000CN	1
13	Registration Cable	RG5-1928-000CN	1
13A	Connector, 7P	VS1-5057-007CN	1
13B	Connector, 3P	RG5-1928-000CN	1
15	Fan 2	RH7-1266-000CN	1
17	Plate Shield	RF5-1464-000CN	1
20	Paper Size Sensing PCA, Trays 2 and 3	RG5-1845-000CN	2
21	Cassette Size Sensor Cable	RG5-1920-000CN	1
CH101	Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	16
CH104	Screw, CT, M3X3	XB5-7303-007CN	4

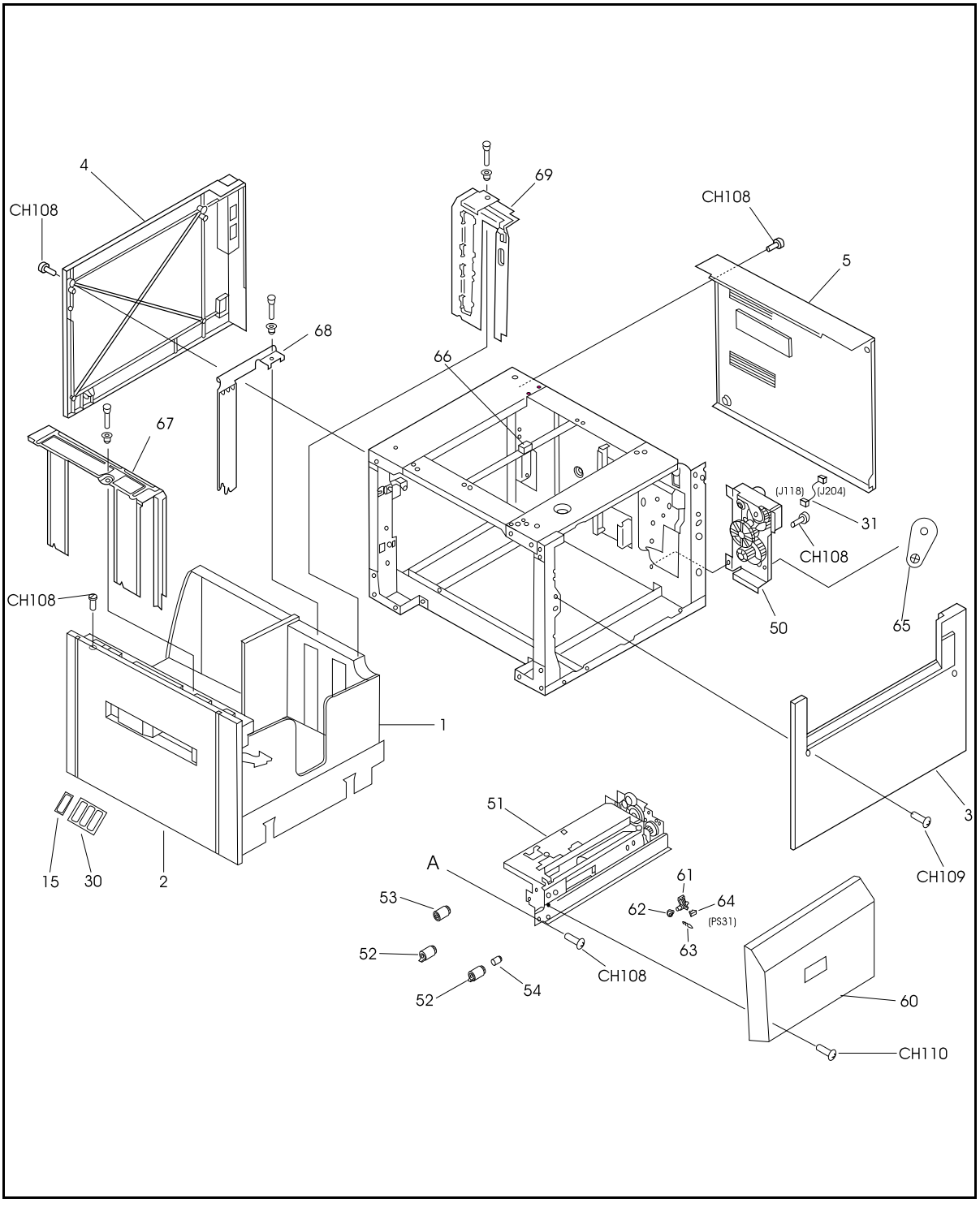


Figure 8-7 2000-Sheet Input Unit Internal Components

Table 8-7 2000-Sheet Input Unit Internal Components

Ref	Description	Part Number	QTY
01	2000-Sheet Input Tray Assembly	RG5-2155-000CN	1
02	Front Cover	RF5-1632-000CN	1
03	Right Cover	RB1-7832-000CN	1
04	Left Cover	RB1-7833-000CN	1
05	Back Cover	RB1-7834-000CN	1
15	Cassette Size Plate	RB1-6894-000CN	1
30	Cassette Size Labels	RS5-8611-000CN	1
31	Motor Cable	RG5-2233-000CN	1
50	Tray 4 Main Drive Assembly	RG5-2164-030CN	1
51	Paper Pick-Up Assembly	RG5-2170-000CN	1
52	Feed / Separation Rollers	RF5-1426-000CN	2
53	Pickup Roller	RF5-1427-000CN	1
54	Torque Limiter	RB1-6588-000CN	1
60	Vertical Transfer Assembly	RG5-2175-020CN	1
61	Paper Registration Sensor Flag	RB1-7813-000CN	1
62	Paper Reg- Bushing	RS5-1201-000CN	1
63	Spring	RS5-2556-000CN	1
64	Paper Reg. Sensor	WG8-5210-000CN	1
65	Bushing, Plastic	RS5-1207-020CN	1
66	Lifter Sensing Switch (SW31)	RG5-2546-000CN	1
67	Adjustable Size Plate: Back	RF5-1609-000CN	1
68	Adjustable Size Plate: Middle	RB1-7726-000CN	1
69	Adjustable Size Plate: Front	RF5-1623-000CN	1
CH108	Screw, TP, M4X6	XB6-7400-606CN	67
CH109	Screw, TP, M4X6	XB6-7400-607CN	2
CH110	Screw, TP, M3X6	XB6-7300-607CN	2

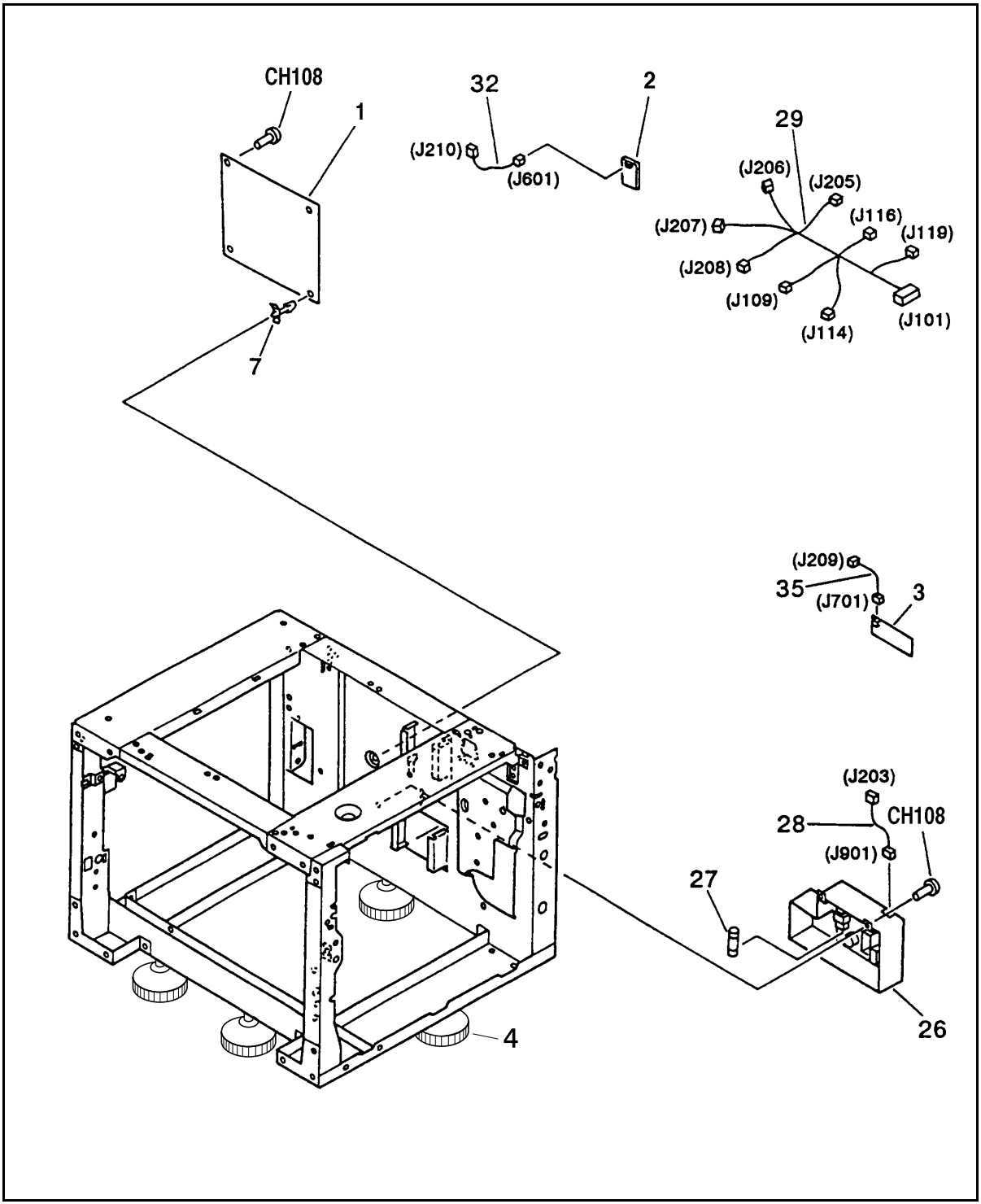


Figure 8-8 2000-Sheet Input Unit Internal Components

Table 8-8 2000-Sheet Input Unit Internal Components

Ref	Description	Part Number	QTY
01	Paper Deck PCA	RG5-4198-000CN	1
02	Paper Sensor PCA	RG5-2225-000CN	1
03	Paper Size PCA	RG5-2226-000CN	1
04	Adjustable Tip Feet	RBI-7684-000CN	4
26	DC Power Supply Assembly	RG5-2281-000CN	1
27	Power Supply Fuse	VD7-0643-151CN	1
28	PSU Cable	RG5-2227-000CN	
29	Main Cable	RG5-2228-000CN	1
32	Volume Paper Cable	RG5-2236-000CN	1
33	Paper Size Cable	RG5-2235-000CN	1
CH108	Screw, TP, M4X6	XB6-7400-606CN	67
CH109	Screw, TP, M4X6	XB6-7400-607CN	2
CH110	Screw, TP, M3X6	XB6-7300-607CN	2

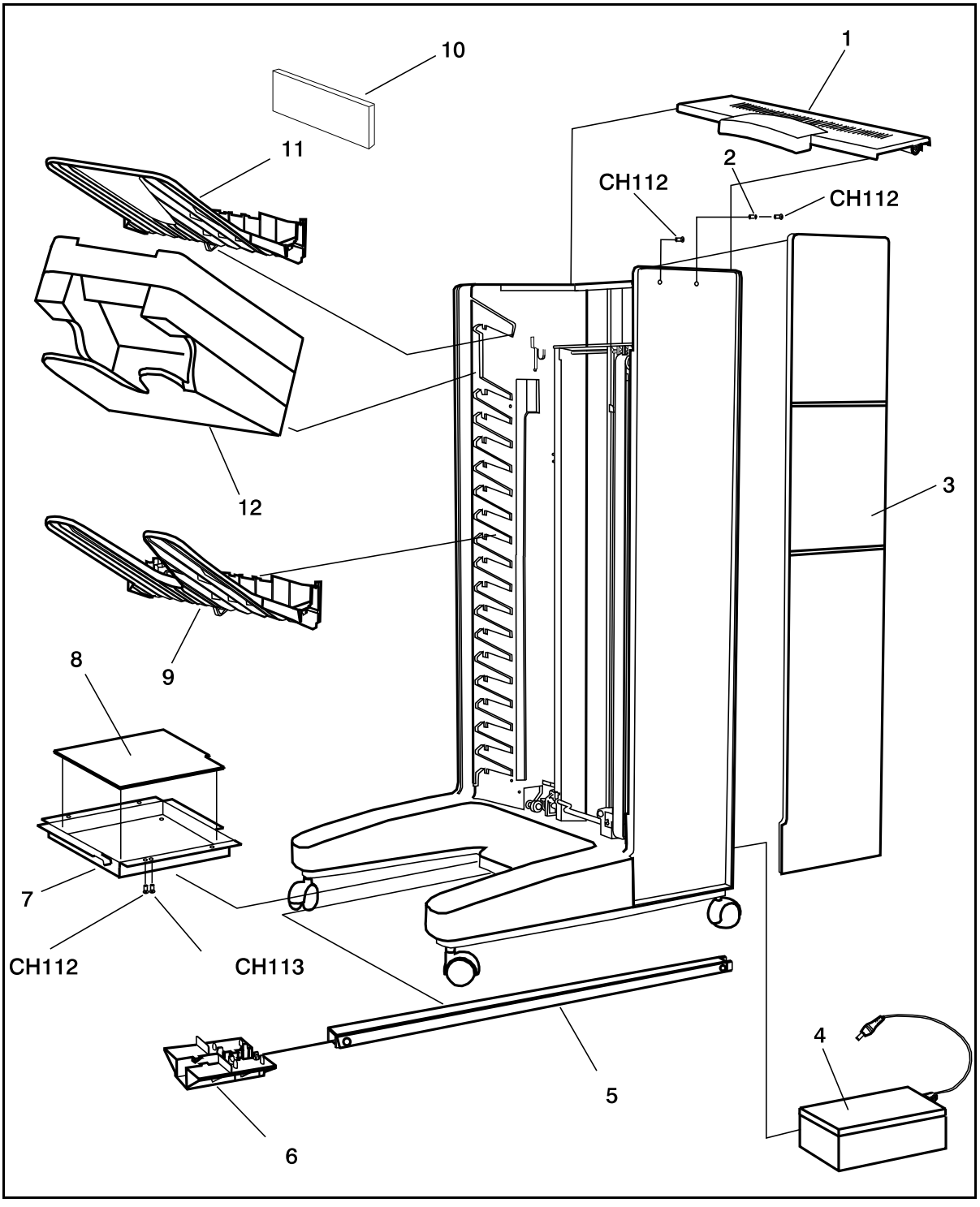


Figure 8-9 Multi-Bin Mailbox/Mailbox with Stapler Components (1 of 3)

Table 8-9 Multi-Bin Mailbox/Mailbox with Stapler Components (1 of 3)

Ref	Description	Part Number	QTY
01	Top Cover	C3764-60555	1
02	Spacer, plastic	C3764-60524	1
03	Right Cover	C3764-60553	1
04	Power Supply Assembly	0950-2927	1
05	Attachment Beam Assembly	C3764-67906	1
06	Attachment Bracket	C3764-60560	1
07	Metallic Box	C3764-60523	1
08	Multi-bin Mailbox Controller PCA	C3766-60535	1
09	Bin Assembly (8-pak)	C3766-60536	1
09A	Individual Bin	C3766-60537	8
10	Blind Cover (only with 8 bin MBM)	C3764-60550	1
11	Face Up Bin	C3764-60505	1
12	Stapling Unit	C3766-60500	1
12	Stapling Unit Exchange	C3766-69500	1
CH112	Screw, Torx, T20, M4X10	C3764-60519	3
CH113	Screw, Torx, T20, tapping, M4X10	C3764-60525	4
not shown	Packaging Kit	C3764-60500	1
not shown	Exchange Mailbox: 5 bin for Stapler	C3766-69515	1
not shown	Exchange Mailbox: 8 bin for Stapler	C3764-69100	1

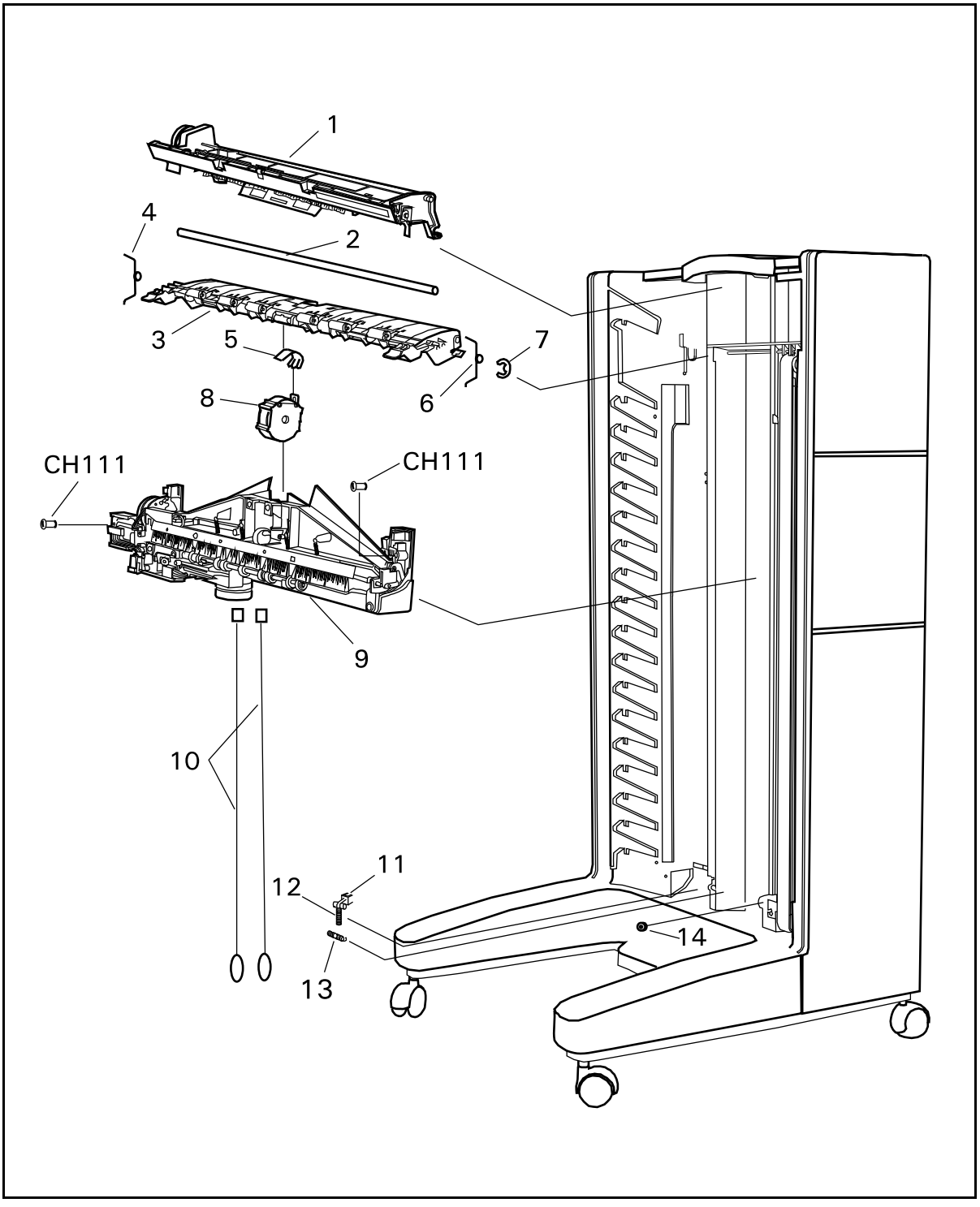


Figure 8-10 Multi-Bin Mailbox/Mailbox with Stapler Components (2 of 3)

Table 8-10 Multi-Bin Mailbox/Mailbox with Stapler Components (2 of 3)

Ref	Description	Part Number	QTY
01	Flipper Assembly (no cable)	C3764-60501	1
02	Mounting Shaft (Hex)	C3764-60516	1
03	Jam Access Door Assembly	C3764-60514	1
04	Spring, left, jam access door	C3764-60522	1
05	Metal Tape Holder	C3764-60515	1
06	Spring, right, jam access door	C3764-60518	1
07	Mounting Shaft "e" Clip	C3764-60517	2
08	Metallic Tape and Housing Assy.	C3764-60521	1
09	Delivery Head Assembly for Multi-Bin Mailbox Delivery Head Assembly for Mailbox with Stapler	C3764-60502 C3766-60514	1
10	Anti-Curl String	C3764-60562	2
11	Lower Pulley Assembly	C3764-60530	2
12	Lower Pulley Spring	C3764-60531	2
13	Anti-Curl String Spring	C3764-60563	2
14	Pulley, small	C3764-60564	2
CH111	Screw, Torx, T20, M4X12	C3764-60520	2
not shown	Metallic Tape/Housing Kit includes: Metal Tape Holder, C3764-60515; Metallic Tape & Housing Assy, C3764-60521	C3764-67900	
not shown	Hardware Kit includes: Mounting Shaft ‘e’ Clip 5, C3764-60517; L Spring Right, C3764-60518; L Spring Left, C3764-60522; Mount Screw Machined T20 M4X10, C3764-60519; Plastic Spacer, C3764-60524; Mount Screw Machined T20 M4X12, C3764-60520; Gasket Cable Clamps, C3764-60565; Lower Pulley Assembly, C3764-60530; Lower Pulley Spring, C3764-60531; PCA Mounting Screw, C3764-60525	C3764-67901	
not shown	Paper Guide Kit includes: Paper Guide String, C3764-60562; Paper Guide Spring, C3764-60563; Pulley (small), C3764-60564	C3764-67902	
not shown	Flat Cable Kit Includes: Flat Cable, C3764-60545; Cable Holder (flat),C3764-60513; Cable Holder (edge), C3764-60566	C3764-67903	
not shown	Stepper Motor/Encoder Kit includes: Transport Stepper Motor Assy, C3764-60532; Encoder Assy, C3764-60533; Encoder Cable, C3764-60549	C3764-67904	
not shown	Interlock Switch Kit includes: Interlock Switch, C3764-60556; Interlock Switch Cable, C3764-60548	C3764-67905	
not shown	Attachment Beam Kit includes: Attachment Beam Assy, C3764-60558; Attachment Clips, C3764-60559; Attachment Bracket, C3764-60560	C3764-67906	

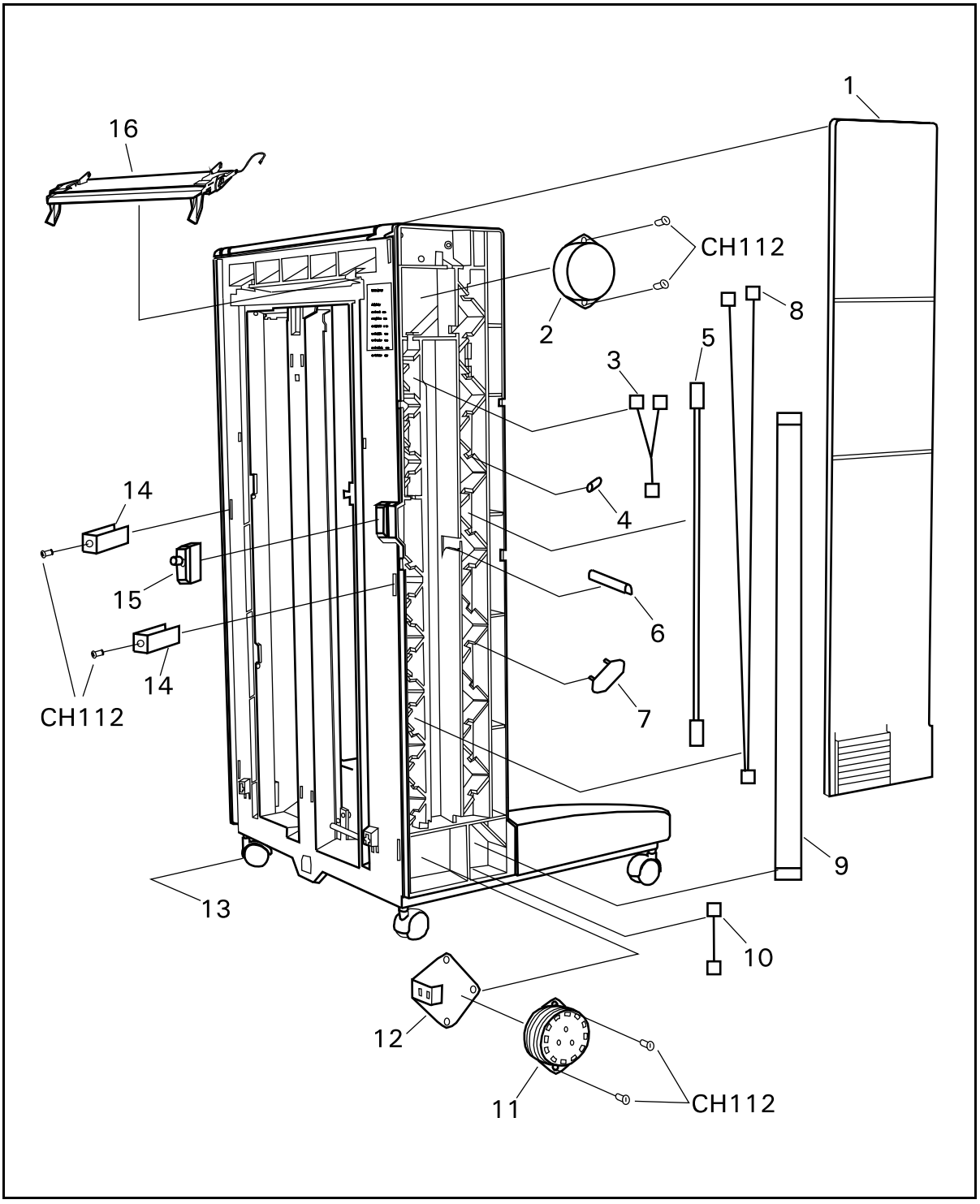


Figure 8-11 Multi-Bin Mailbox/Mailbox with Stapler Components (3 of 3)

Table 8-11 Multi-Bin Mailbox/Mailbox with Stapler Components (3 of 3)

Ref	Description	Part Number	QTY
01	Left Cover	C3764-60554	1
02	Delivery Head Position Motor	C3764-60507	1
03	Cable, Delivery Head Position Motor to Controller PCA	C3764-60547	1
04	Cable Holder, Round Gasket	C3764-60565	10
05	Cable, Interlock Switch to Controller PCA	C3764-60548	1
06	Cable Holder, Edge	C3764-60566	1
07	Cable Holder, Flat	C3764-60513	2
08	Cable, Flipper Assembly to Controller PCA	C3764-60546	1
09	Cable, Flat, Delivery Head to Controller PCA	C3764-60545	1
10	Cable, Encoder to Controller PCA	C3764-60549	1
11	Transport Belt Motor (in kit)	C3764-67904	1
12	Encoder Assembly	C3764-60533	1
13	Casters	C3764-60551	4
14	Attachment Clips (in kit)	C3764-67906	2
15	Interlock Switch	C3764-60556	1
16	Input Paper Guide	C3764-60561	1
CH112	Screw, Torx, T20, M4X10	C3764-60519	6

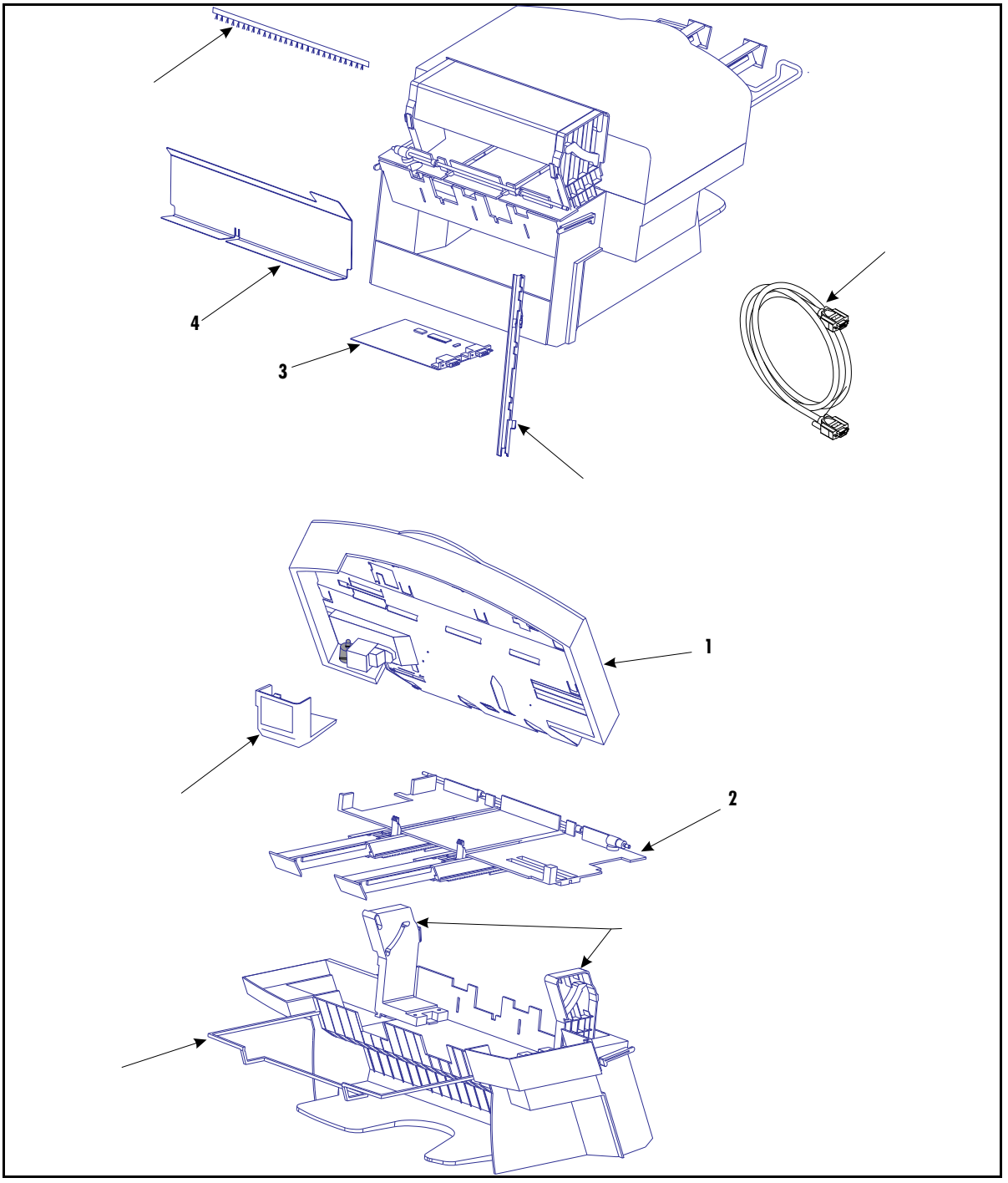


Figure 8-12 Stapling Unit Internal Components

Table 8-12 Stapling Unit Internal Components

Ref	Description	Part Number	Qty
	Stapling Unit Assembly	C3766-60500	1
	Exchange Stapling Unit	C3766-69500	1
1	Top Cover Assembly	C3766-60501	1
2	Stapling Bed Assembly	C3766-60503	1
3	Stapling Unit Control PCA	C3766-60504	1
4	Back Plate	C3766-60505	1
5	Hinges, Set of	C3766-60506	1
6	Wire Frame	C3766-60507	1
7	Brushes	C3766-60508	1
not shown	Stapling Unit Packaging	C3766-60509	1
8	Kit: Plastic staple cover; scan bar (shown) bin full sensor, acutator, and flag (not shown)	C3766-60510	
not shown	Kit: T10 Torx screws (10)	C3766-60511	
9	C-Link Cable (97 cm)	C3766-60512	1

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Parts Index

Alphabetical Parts Index

Table A-1 Alphabetical Parts List

Description	Product/Part No.	Fig.	Ref.
2000-Sheet Input Unit (Tray 4)	C3763A	8-01	07
2000-Sheet Input Tray Assembly	RG5-2155-000CN	8-07	01
3 Way Power Adapter	C4077-60102	8-01	not shown
20T Gear	RS5-0758-000CN	8-04A	16
420 MB Disk Cable Assembly	C2965-60004	8-01	not shown
420 MB Disk Drive	C2965A	8-01	03
420 MB Disk Drive, Exchange	C2965-69001	8-01	03A
420 MB Disk Left Mounting Bracket	C2965-40001	8-01	not shown
420 MB Disk Right Mounting Bracket	C2965-40002	8-01	not shown
8 Bin Multi Bin 5 Bin Mailbox for Stapler	C3764-69100 C3766-69515	8-01	12
AC Access Cover	RB1-6489-000CN	8-02	12
Adjustable-Size Plate: Back	RF5-1609-000CN	8-07	67
Adjustable-Size Plate: Middle	RB1-7726-000CN	8-07	68
Adjustable-Size Plate: Front	RF5-1623-000CN	8-07	69
Adjustable Tip Feet	RBI-7684-000CN	8-08	04
Anti-Curl String	C3764-60562	8-10	10
Anti-Curl String Spring	C3764-60563	8-10	13
Attachment Beam Assembly	C3764-67906	8-09	05
Attachment Bracket	C3764-60560	8-09	06
Attachment Clips (in kit)	C3764-67906	8-11	14
Back Cover	RB1-7834-000CN	8-07	05
Back Plate	C3766-60505	8-12	04
BD Cable	RG5-1926-000CN	8-05	20
Bin Assembly (8-pak)	C3766-60536	8-09	09
Bin, Individual	C3766-60537	8-09	09A
Blind Cover (only with 8 bin MBM)	C3764-60550	8-09	10
Block, Shaft Holding, Front	RB1-6414-000CN	8-04D	07
Block, Shaft Holding, Rear	RB1-6415-000CN	8-04D	08
Brushes	C3766-60508	8-12	07
Bushing, Plastic	RS5-1207-020CN	8-07	65
Cable Assembly	RG5-1924-000CN	8-05	18

Description	Product/Part No.	Fig.	Ref.
Cable Assembly	RG5-1924-000CN	8-02	22
Cable Holder, Edge	C3764-60566	8-11	06
Cable Holder, Flat	C3764-60513	8-11	07
Cable Holder, Round Gasket	C3764-60565	8-11	04
Cable, Delivery Head Position Motor to Controller PCA	C3764-60547	8-11	03
Cable, Encoder to Controller PCA	C3764-60549	8-11	10
Cable, Flat, Delivery Head to Controller PCA	C3764-60545	8-11	09
Cable, Flipper Assembly to Controller PCA	C3764-60546	8-11	08
Cable, Interlock Switch to Controller PCA	C3764-60548	8-11	05
Cassette Size Labels	RS5-8611-000CN	8-07	30
Cassette Size Plate	RB1-6894-000CN	8-07	15
Cassette Size Sensor Cable	RG5-1920-000CN	8-06	21
Casters	C3764-60551	8-11	13
C-Link Cable Assembly 178 cm (HCI to MBM)	C3764-70000	8-01	not shown
C-Link Cable Assembly 61 cm (Engine to HCI)	C3763-70000	8-01	not shown
C-Link Cable Assembly 97 cm (MBM to Stapler)	C3766-60512	8-01	not shown
C-Link Cable Assembly 97 cm	C3766-60512	8-12	not shown
Clutch Cover	RB1-6468-000CN	8-03	08
Compression Spring, Front	RS5-2463-000CN	8-04D	14
Compression Spring, Rear	RS5-2466-000CN	8-04D	16
Conductive Bushing	RS5-1101-000CN	8-04A	18
Connector, 3P	RG5-1928-000CN	8-06	13B
Connector, 7P	VS1-5057-007CN	8-06	13A
Cover Assembly	RG5-1870-000CN	8-02	05
Cover, Left Lower (Special Order)	RB1-6480-000CN	8-02	11
Cover, Switch (Special Order)	RB1-6492-000CN	8-02	14
Damper Holder (Front)	RB1-6461-000CN	8-03	05
Damper Holder (Rear)	RB1-6462-000CN	8-03	06
DC Controller PCA	RG5-1844-050CN	8-05	32
DC Controller PCA, Exchange	C3166-69010	8-05	32A
DC Power Supply Assembly	RG5-2281-000CN	8-08	26
Delivery Head Assembly for Multi-Bin Delivery Head Assembly for Mailbox with Stapler	C3764-60502 C3766-60514	8-10	09
Delivery Head Position Motor	C3764-60507	8-11	02
Diverter Assembly	RG9-1150-000CN	8-04	A

Description	Product/Part No.	Fig.	Ref.
Diverter Assembly	RG9-1150-000CN	8-02	30
Diverter Drive Assembly	RF5-1441-000CN	8-04A	11
Duplex Unit	C3762A	8-01	10
Duplex Unit, Heavy Media	C4178-69001	8-01	10
Duplex Unit Roller 1	RB1-6822-000CN	8-01	11
Electromagnetic Clutch	RH7-5119-000CN	8-03	24A
Electromagnetic Clutch (Paper Feed)	RH7-5120-000CN	8-04E	88
Encoder Assembly	C3764-60533	8-11	12
Envelope Feeder	C3765A	8-01	06
Exchange Mailbox: 5 Bin for Stapler	C3766-69515	8-09	not shown
Exchange Mailbox: 8 Bin	C3764-69100	8-09	not shown
Exchange Stapling Unit	C3766-69500	8-12	not shown
External Paper Handling Controller PCA	C3768-60501	8-01	04
Face -Up Solenoid Assembly	RG5-1875-000CN	8-03	22
Face Up Bin	C3764-60505	8-09	11
Face-Up Bin	RB1-6491-000CN	8-01	13
Face-Up Bin (Special Order)	RB1-6490-000CN	8-02	13
Face-Down Delivery Assembly	RG5-1874-000CN	8-03	20
Fan 1	RH7-1266-000CN	8-05	16
Fan 2	RH7-1266-000CN	8-06	15
Fan 3	RH7-1271-000CN	8-06	11
Fan 3 Cable	RG5-1921-000CN	8-06	12
Fan 4	RH7-1289-000CN	8-04B	25
Feed / Separation Rollers	RF5-1426-000CN	8-04E	20
Feed / Separation Rollers	RF5-1426-000CN	8-07	52
Feeder Assembly	RG5-1834-000CN	8-04	D
Feeder Assembly	RG5-1834-000CN	8-03	23
Flipper Assembly (no cable)	C3764-60501	8-10	01
Formatter Assembly	C3168-67905	8-01	01
Formatter Assembly, Exchange	C3168-69005	8-01	01A
Formatter Assembly, Heavy Media	C3125-60001	8-01	01
Formatter Shield	RF5-1466-000CN	8-06	08
Front Cover	RB1-6494-000CN	8-02	08
Front Cover	RF5-1632-000CN	8-07	02
Front Door	RB1-6495-000CN	8-02	09

Description	Product/Part No.	Fig.	Ref.
Front Door Latch	XZ9-0379-000CN	8-02	10
Front Panel (Control Panel Display)	RG5-2433-000CN	8-02	19
Fuse, LVPS, 110-120V	VD5-0056-301CN	8-06	05
Fuse, LVPS, Universal	VD7-0646-301CN	8-06	05A
Fuser Assembly 110V, Exchange	C3166-69001	8-04	C
Fuser Cable 1	RG5-1849-000CN	8-06	02
Fuser Cable 2	RG5-1850-000CN	8-06	03
Fuser Flag	RB1-6614-000CN	8-04C	36
Fuser Lock Lever Left	RB1-6616-000CN	8-04C	38
Fuser Lock Lever Right	RB1-6615-000CN	8-04C	37
Fusing Assembly 100-120V	RG5-1863-200CN	8-03	21A
Fusing Assembly 100-120V, Exchange	C3166-69001	8-03	21C
Fusing Assembly 220-240V	RG5-1871-190CN	8-03	21B
Fusing Assembly 220-240V, Exchange	C3166-69013	8-03	21D
Guide, PCA	RB1-6771-000CN	8-06	06
Guide, Slide	RB1-6775-000CN	8-06	07
High Voltage Power Supply	RG5-1888-000CN	8-05	31
High Voltage Power Supply, Exchange	C3166-69005	8-05	31A
Hinge Plate	RB1-6507-000CN	8-02	03
Hinges, Set of	C3766-60506	8-12	05
ILS Cable	RG5-1927- 000CN	8-05	21
Input Paper Guide	C3764-60561	8-11	16
Interlock Switch	C3764-60556	8-11	15
Jam Access Door Assembly	C3764-60514	8-10	03
Kit, Metallic Tape/Housing	C3764-67900	8-10	not shown
Kit, Hardware	C3764-67901	8-10	not shown
Kit, Paper Guide	C3764-67902	8-10	not shown
Kit, Flat Cable	C3764-67903	8-10	not shown
Kit, Stepper Motor/Encoder	C3764-67904	8-10	not shown
Kit, Interlock Switch	C3764-67905	8-10	not shown
Kit, Attachment Beam	C3764-67906	8-10	not shown
Kit: Plastic staple cover; bin full sensor, actuator, and flag; next bin full sensor, actuator, and flag; scan bar	C3766-60510	8-10	08
Kit: T10 Torx screws (10)	C3766-60511	8-12	not shown
Label, Operation (Special Order)	RS5-8596-000CN	8-02	04

Description	Product/Part No.	Fig.	Ref.
Laser / Scanner Assembly	RG5-1895-000CN	8-05	06
Laser / Scaner Assembly, Exchange	C3166-69006	8-05	06A
Left Access Door	RB1-6667-000CN	8-02	01
Left Access Door Struts	RF5-1440-000CN	8-02	02
Left Cover	RB1-7833-000CN	8-07	04
Left Cover	C3764-60554	8-11	01
Lifter Sensing Switch (SW31)	RG5-2546-000CN	8-07	66
Low Voltage Power Supply, 110-120V	RG5-1876-000CN	8-06	04A
Low Voltage Power Supply, 110-120V, Exchange	C3166-69007	8-06	04C
Low Voltage Power Supply, Universal	RG5-1878-000CN	8-06	04B
Low Voltage Power Supply, Universal, Exchange	C3166-69008	8-06	04D
Lower Pulley Assembly	C3764-60530	8-10	11
Lower Pulley Spring	C3764-60531	8-10	12
Mailbox with Stapler	C3774A	8-01	12
Main Cable	RG5-2228-000CN	8-08	29
Main Gear Assembly	RG5-1847-000CN	8-03	31
Main Motor	RH7-1260-000CN	8-03	10
Main Motor Cable	RG5-1919-000CN	8-03	15
Maintenance Kit, 100-120V	C3971A/C3971-69001	8-01	not shown
Maintenance Kit, 220-240V	C3972A/C3972-69001	8-01	not shown
Metal Tape Holder	C3764-60515	8-10	05
Metallic Tape and Housing Assy.	C3764-60521	8-10	08
Metallic Box	C3764-60523	8-09	07
MIO Coverplate	C2009-00006	8-01	14
Motor Cable	RG5-2233-000CN	8-07	31
Mounting Shaft "e" Clip	C3764-60517	8-10	07
Mounting Shaft (Hex)	C3764-60516	8-10	02
Multi Bin Mailbox Controller PCA	C3766-60535	8-09	08
Open / Close Stopper	RB1-6484-000CN	8-02	07D
Overlay, English	C3166-40001		not shown
Overlay, French	C3166-40002		not shown
Overlay, Italian	C3166-40003		not shown
Overlay, German	C3166-40004		not shown
Overlay, Spanish	C3166-40005		not shown
Overlay, Norweigan	C3166-40006		not shown

Description	Product/Part No.	Fig.	Ref.
Overlay, Swedish	C3166-40007		not shown
Overlay, Danish	C3166-40008		not shown
Overlay, Finnish	C3166-40009		not shown
Overlay, Dutch	C3166-40010		not shown
Overlay, Polish	C3166-40011		not shown
Overlay, Turkish	C3166-40012		not shown
Overlay, Portugese	C3166-40013		not shown
Overlay, Japanese (Katakana)	C3166-40018		not shown
Overlay, Chinese, Simplified	C3166-40019		not shown
Packaging Kit	C3764-60500	8-09	not shown
Packaging Kit, 2000-Sheet Input Unit	C3763-60500	8-01	not shown
Packaging Kit, Duplex Unit	C3762-60500	8-01	not shown
Packaging Kit, Envelope Feeder	C3765-60500	8-01	not shown
Packaging Kit, Multi-Bin Mailbox	C3764-60500	8-01	not shown
Packaging Kit, Printer	C3166-67905	8-01	not shown
Paper Deck PCA	RG5-4198-000CN	8-08	01
Paper Height Lever	RB1-6693-000CN	8-04B	12
Paper Input Unit (PIU)	C3166-69011	8-04	E
Paper Input Unit (PIU)	RG5-1852-160CN	8-03	30
Paper Input Unit (PIU), Exchange	C3166-69011	8-03	30A
Paper Pick-Up Assembly	RG5-2170-000CN	8-07	51
Paper Pickup Cable	RG5-1861-000CN	8-04E	86
Paper Reg- Bushing	RS5-1201-000CN	8-07	62
Paper Reg. Sensor	WG8-5210-000CN	8-07	64
Paper Registration Sensor Flag	RB1-7813-000CN	8-07	61
Paper Sensing Lever	RB1-6692-000CN	8-04B	11
Paper Sensor PCA	RG5-2225-000CN	8-08	02
Paper Size Cable	RG5-2235-000CN	8-08	33
Paper Size Guide (Trays 2 and 3)	RF5-1484-000CN	8-01	not shown
Paper Size Guide Label (Trays 2 and 3)	RS5-8605-000CN	8-01	not shown
Paper Size PCA	RG5-2226-000CN	8-08	03
Paper Size Sensing PCA, Trays 2 and 3	RG5-1845-000CN	8-06	20
Photo Interrupter	WG8-0291-000CN	8-04D	18
Photo Interrupter	WG8-0291-000CN	8-04E	52
Pick-Up Motor	RH7-1262-000CN	8-04E	87

Table A-1 Alphabetical Parts List (continued)

Description	Product/Part No.	Fig.	Ref.
Pickup Roller	RF5-1427-000CN	8-04E	21
Pickup Roller	RF5-1427-000CN	8-07	53
PIU PCA	RG5-1860-000CN	8-04E	103
Plate Guard	RB1-6522-000CN	8-02	25
Plate Shield	RF5-1464-000CN	8-06	17
Postscript SIMM	C3169A	8-01	02
Power Cord	RH2-5236-000CN		not shown
Power Supply Assembly	0950-2927	8-09	04
Power Supply Fuse	VD7-0643-151CN	8-08	27
PSU Cable	RG5-2227-000CN	8-08	28
Pulley, small	C3764-60564	8-10	14
Rear Cover	RF5-1402-000CN	8-02	17
Registration Assembly	RG5-1833-040CN	8-03	24
Registration Cable	RG5-1928-000CN	8-06	13
Right Cover	RB1-7832-000CN	8-07	03
Right Cover	C3764-60553	8-09	03
Right Cover Assembly	RG5-1915-040CN	8-02	07
Right, Lower Cover (Rear Plastic on Sheet Metal)	RB1-6498-000CN	8-02	16
Scanner Motor Cable	RG5-1925-000CN	8-05	19
Screw, CT, M3X3	XB5-7303-007CN	8-05	CH104
Screw, CT, M3X3	XB5-7303-007CN	8-06	CH104
Screw, M4X8	XB6-7400-807CN	8-03	CH103
Screw, tapping, M4X8	XA9-0605-000CN	8-03	CH114
Screw, tapping, pan head, M4X10	XB4-7401-009CN	8-02	CH107
Screw, tapping, pan head, M4X10	XB4-7401-009CN	8-05	CH107
Screw, tapping, truss head, M3X8	XB4-7300-809CN	8-05	CH106
Screw, Torx, T20, M4X10	C3764-60519	8-09	CH112
Screw, Torx, T20, M4X10	C3764-60519	8-11	CH112
Screw, Torx, T20, M4X12	C3764-60520	8-10	CH111
Screw, Torx, T20, tapping, M4X10	C3764-60525	8-09	CH113
Screw, TP, M3X6	XB6-7300-607CN	8-07	CH110
Screw, TP, M3X6	XB6-7300-607CN	8-08	CH110
Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	8-02	CH101

Description	Product/Part No.	Fig.	Ref.
Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	8-03	CH101
Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	8-05	CH101
Screw, TP, M3X6 (fixed shoulder)	XA9-0267-000CN	8-06	CH101
Screw, TP, M3X6 (floating flat and lock washer)	XA9-0547-000CN	8-02	CH102
Screw, TP, M3X6 (floating flat and lock washer)	XA9-0547-000CN	8-03	CH102
Screw, TP, M4X6	XB6-7400-606CN	8-07	CH108
Screw, TP, M4X6	XB6-7400-607CN	8-07	CH109
Screw, TP, M4X6	XB6-7400-606CN	8-08	CH108
Screw, TP, M4X6	XB6-7400-607CN	8-08	CH109
Screw, w/washer, M3X20	XA9-0817-000CN	8-03	CH105
Screw, w/washer, M3X20	XA9-0817-000CN	8-05	CH105
Sensor Arm PS1	RB1-6417-000CN	8-04D	10
Sensor Arm PS2	RB1-6557-000CN	8-04E	48
Sensor Arm Spring	RB1-6409-000CN	8-04D	03
Sensor Arm Spring	RB1-6558-000CN	8-04E	49
Sensor Cable	RG5-1843-000CN	8-04D	13
Sensor Cable	RG5-1859-000CN	8-04E	51
Spacer, plastic	C3764-60524	8-09	02
Spring	RS5-2556-000CN	8-07	63
Spring, Compression (Special Order)	RB1-6493-000CN	8-02	15
Spring, left, jam access door	C3764-60522	8-10	04
Spring, right, jam access door	C3764-60518	8-10	06
Spring, Torsion (Special Order)	RB1-6509-000CN	8-02	18
Stapling Bed Assembly	C3766-60503	8-12	02
Stapling Unit	C3766-60500	8-09	12
Stapling Unit Assembly	C3766-60500	8-12	
Stapling Unit Exchange	C3766-69500	8-09	12
Stapling Unit Control PCA	C3766-60504	8-12	03
Stapling Unit Packaging	C3766-60509	8-12	not shown
Switch / Sensor PCA	RG5-1846-000CN	8-05	30
Tension Spring	RS5-2490-000CN	8-04A	20
Toner Cartridge	C3909A	8-01	05
Top Cover	C3764-60555	8-09	01
Top Cover Assembly	C3766-60501	8-12	01

Table A-1 Alphabetical Parts List (continued)

Description	Product/Part No.	Fig.	Ref.
Torque Limiter	RB1-6588-000CN	8-04E	10
Torque Limiter	RB1-6588-000CN	8-07	54
Transfer Guide	RF5-1394-000CN	8-03	02
Transfer Guide Bushing	RB1-6441-000CN	8-03	01
Transfer Roller	RF5-1412-000CN	8-03	03
Transfer Roller Assembly	RG5-1887-000CN	8-03	40
Transpsort Belt Motor (in kit)	C3764-67904	8-11	11
Tray 1 Door	RG5-1883-000CN	8-03	28
Tray 1 Feed Roller	RB1-6730-000CN	8-03	26
Tray 1 Internal Cover (Shield)	RB1-6749-000CN	8-03	29
Tray 1 PCA	RG5-1884-000CN	8-03	55
Tray 1 Pick-up Assembly	RG5-1880-100CN	8-03	25
Tray 1 Separation Pad	RF5-1455-000CN	8-03	27
Tray 2	C2931A	8-01	08
Tray 3	C2930A	8-01	09
Tray 4 Main Drive Assembly	RG5-2164-030CN	8-07	50
Vertical Transfer Assembly	RG5-2175-020CN	8-07	60
Volume Paper Cable	RG5-2236-000CN	8-08	32
Wire Frame	C3766-60507	8-12	06

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Table A-2 Numerical Parts Index

Part No.	Description	Fig.	Ref.
0950-2927	Power Supply Assembly	8-09	04
C2009-00006	MIO Coverplate	8-01	14
C2930A	Tray 3	8-01	09
C2931A	Tray 2	8-01	08
C2965-40001	420 MB Disk Left Mounting Bracket	8-01	not shown
C2965-40002	420 MB Disk Right Mounting Bracket	8-01	not shown
C2965-60004	420 MB Disk Cable Assembly	8-01	not shown
C2965-69001	420 MB Disk Drive, Exchange	8-01	03A
C2965A	420 MB Disk Drive	8-01	03
C3166-67905	Packaging Kit, Printer	8-01	not shown
C3166-69001	Fuser Assembly (110V)	8-04	C
C3166-69001	Fusing Assembly 100-120V, Exchange	8-03	21C
C3166-69005	High Voltage Power Supply, Exchange	8-05	31A
C3166-69006	Laser / Scaner Assembly, Exchange	8-05	06A
C3166-69007	Low Voltage Power Supply, 110-120V, Exchange	8-06	04C
C3166-69008	Low Voltage Power Supply, Universal, Exchange	8-06	04D
C3166-69010	DC Controller PCA, Exchange	8-05	32A
C3166-69011	Paper Input Unit (PIU), Exchange	8-03	30A
C3166-69011	Paper Input Unit (PIU)	8-04	E
C3166-69013	Fusing Assembly 220-240V, Exchange	8-03	21D
C3168-67905	Formatter Assembly	8-01	01
C3168-69005	Formatter Assembly, Exchange	8-01	01A
C3169A	Postscript SIMM	8-01	02
C3762-60500	Packaging Kit, Duplex Unit	8-01	not shown
C3762A	Duplex Unit	8-01	10
C3763-60500	Packaging Kit, 2000-Sheet Input Unit	8-01	not shown
C3763-70000	C-Link Cable Assembly, 61 cm (Engine to HCI)	8-01	not shown
C3763A	2000-Sheet Input Unit (Tray 4)	8-01	07
C3764-60500	Packaging Kit, Multi-Bin Mailbox	8-01	not shown
C3764-60500	Packaging Kit	8-09	not shown
C3764-60501	Flipper Assembly (no cable)	8-10	01
C3764-60502	Delivery Head Assembly for Multi-bin	8-10	09

Part No.	Description	Fig.	Ref.
C3764-60505	Face Up Bin	8-09	11
C3764-60507	Delivery Head Position Motor	8-11	02
C3764-60513	Cable Holder, Flat	8-11	07
C3764-60514	Jam Access Door Assembly	8-10	03
C3764-60515	Metal Tape Holder	8-10	05
C3764-60516	Mounting Shaft (Hex)	8-10	02
C3764-60517	Mounting Shaft "e" Clip	8-10	07
C3764-60518	Spring, right, jam access door	8-10	06
C3764-60519	Screw, Torx, T20, M4X10	8-09	CH112
C3764-60519	Screw, Torx, T20, M4X10	8-11	CH112
C3764-60520	Screw, Torx, T20, M4X12	8-10	CH111
C3764-60521	Metalic Tape and Housing Assy.	8-10	08
C3764-60522	Spring, left, jam access door	8-10	04
C3764-60523	Metallic Box	8-09	07
C3764-60524	Spacer, plastic	8-09	02
C3764-60525	Screw, Torx, T20, tapping, M4X10	8-09	CH113
C3764-60530	Lower Pulley Assembly	8-10	11
C3764-60531	Lower Pulley Spring	8-10	12
C3764-60533	Encoder Assembly	8-11	12
C3764-60545	Cable, Flat, Delivery Head to Controller PCA	8-11	09
C3764-60546	Cable, Flipper Assembly to Controller PCA	8-11	08
C3764-60547	Cable, Delivery Head Position Motor to Controller PCA	8-11	03
C3764-60548	Cable, Interlock Switch to Controller PCA	8-11	05
C3764-60549	Cable, Encoder to Controller PCA	8-11	10
C3764-60550	Blind Cover (only with 8 bin MBM)	8-09	10
C3764-60551	Casters	8-11	13
C3764-60553	Right Cover	8-09	03
C3764-60554	Left Cover	8-11	01
C3764-60555	Top Cover	8-09	01
C3764-60556	Interlock Switch	8-11	15
C3764-60560	Attachment Bracket	8-09	06
C3764-60561	Input Paper Guide	8-11	16
C3764-60562	Anti-Curl String	8-10	10
C3764-60563	Anti-Curl String Spring	8-10	13

Table A-2 Numerical Parts Index (continued)

Part No.	Description	Fig.	Ref.
C3764-60564	Pulley, small	8-10	14
C3764-60565	Cable Holder, Round Gasket	8-11	04
C3764-60566	Cable Holder, Edge	8-11	06
C3764-67900	Kit, Metallic Tape/Housing	8-10	not shown
C3764-67901	Kit, Hardware	8-10	not shown
C3764-67902	Kit, Paper Guide	8-10	not shown
C3764-67903	Kit, Flat Cable	8-10	not shown
C3764-67904	Transpsort Belt Motor (in kit)	8-11	11
C3764-67905	Kit, Interlock Switch	8-10	not shown
C3764-67906	Attachment Clips (in kit)	8-11	14
C3764-67906	Attachment Beam Assembly	8-09	05
C3764-69100	Exchange Mailbox: 8 Bin	8-01	12
C3764-69100	Exchange Mailbox: 8 Bin	8-09	not shown
C3764-70000	C-Link Cable Assembly, 178 cm (HCI to MBM)	8-01	not shown
C3765-60500	Packaging Kit, Envelope Feeder	8-01	not shown
C3765A	Envelope Feeder	8-01	06
C3766-60500	Stapling Unit Assembly	8-12	
C3766-60500	Stapling Unit	8-09	12
C3766-60501	Top Cover Assembly	8-12	01
C3766-60503	Stapling Bed Assembly	8-12	02
C3766-60504	Stapling Unit Control PCA	8-12	03
C3766-60505	Back Plate	8-12	04
C3766-60506	Hinges, Set of	8-12	05
C3766-60507	Wire Frame	8-12	06
C3766-60508	Brushes	8-12	07
C3766-60509	Stapling Unit Packaging	8-12	not shown
C3766-60510	Kit: staple cover; bin full sensor, actuator, and flag; next bin full sensor, actuator, and flag; scan bar	8-10	08
C3766-60511	Kit: T10 Torx screws (10)	8-12	not shown
C3766-60512	C-Link Cable Assembly, 97 cm (MBM to Stapler)	8-01	not shown
C3766-60512	C-Link Cable Assembly, 97 cm	8-12	9
C3766-60514	Delivery Head Assembly for Mailbox with Stapler	8-10	09
C3766-60535	Multi-bin Mailbox Controller PCA	8-09	08
C3766-60536	Bin Assembly (8-pak)	8-09	09
C3766-60537	Bin, Individual	8-09	09A

Part No.	Description	Fig.	Ref.
C3766-69500	Exchange Stapling Unit	8-12	not shown
C3766-69500	Stapling Unit Exchange	8-09	12
C3766-69515	Exchange Mailbox: 5 Bin for Stapler	8-01	12
C3766-69515	Exchange Mailbox: 5 Bin for Stapler	8-09	not shown
C3768-60501	External Paper Handling Controller PCA	8-01	04
C3774A	Mailbox with Stapler	8-01	12
C3909A	Toner Cartridge	8-01	05
C3971-69001	Maintenance Kit, 100-120V	8-01	not shown
C3971A	Maintenance Kit, 100-120V	8-01	not shown
C3972-69001	Maintenance Kit, 220-240V	8-01	not shown
C3972A	Maintenance Kit, 220-240V	8-01	not shown
C4077-60102	3 Way Power Adapter	8-01	not shown
RB1-6409-000CN	Sensor Arm Spring	8-04D	03
RB1-6414-000CN	Block, Shaft Holding, Front	8-04D	07
RB1-6415-000CN	Block, Shaft Holding, Rear	8-04D	08
RB1-6417-000CN	Sensor Arm PS1	8-04D	10
RB1-6441-000CN	Transfer Guide Bushing	8-03	01
RB1-6461-000CN	Damper Holder (Front)	8-03	05
RB1-6462-000CN	Damper Holder (Rear)	8-03	06
RB1-6468-000CN	Clutch Cover	8-03	08
RB1-6480-000CN	Cover, Left Lower (Special Order)	8-02	11
RB1-6484-000CN	Open / Close Stopper	8-02	07D
RB1-6489-000CN	AC Access Cover	8-02	12
RB1-6490-000CN	Face-Up Bin (Special Order)	8-02	13
RB1-6491-000CN	Face-Up Bin	8-01	13
RB1-6492-000CN	Cover, Switch (Special Order)	8-02	14
RB1-6493-000CN	Spring, Compression (Special Order)	8-02	15
RB1-6494-000CN	Front Cover	8-02	08
RB1-6495-000CN	Front Door	8-02	09
RB1-6498-000CN	Right, Lower Cover (Rear Plastic on Sheet Metal)	8-02	16
RB1-6507-000CN	Hinge Plate	8-02	03
RB1-6509-000CN	Spring, Torsion (Special Order)	8-02	18
RB1-6522-000CN	Plate Guard	8-02	25
RB1-6557-000CN	Sensor Arm PS2	8-04E	48

Part No.	Description	Fig.	Ref.
RB1-6558-000CN	Sensor Arm Spring	8-04E	49
RB1-6588-000CN	Torque Limiter	8-04E	10
RB1-6588-000CN	Torque Limiter	8-07	54
RB1-6614-000CN	Fuser Flag	8-04C	36
RB1-6615-000CN	Fuser Lock Lever Right	8-04C	37
RB1-6616-000CN	Fuser Lock Lever Left	8-04C	38
RB1-6667-000CN	Left Access Door	8-02	01
RB1-6692-000CN	Paper Sensing Lever	8-04B	11
RB1-6693-000CN	Paper Height Lever	8-04B	12
RB1-6730-000CN	Tray 1 Feed Roller	8-03	26
RB1-6749-000CN	Tray 1 Internal Cover (Shield)	8-03	29
RB1-6771-000CN	Guide, PCA	8-06	06
RB1-6775-000CN	Guide, Slide	8-06	07
RB1-6822-000CN	Duplex Unit Roller 1	8-01	11
RB1-6894-000CN	Cassette Size Plate	8-07	15
RB1-7726-000CN	Adjustable Size Plate: Middle	8-07	68
RB1-7813-000CN	Paper Registration Sensor Flag	8-07	61
RB1-7832-000CN	Right Cover	8-07	03
RB1-7833-000CN	Left Cover	8-07	04
RB1-7834-000CN	Back Cover	8-07	05
RBI-7684-000CN	Adjustable Tip Feet	8-08	04
RF5-1394-000CN	Transfer Guide	8-03	02
RF5-1402-000CN	Rear Cover	8-02	17
RF5-1412-000CN	Transfer Roller	8-03	03
RF5-1426-000CN	Feed / Separation Rollers	8-04E	20
RF5-1426-000CN	Feed / Separation Rollers	8-07	52
RF5-1427-000CN	Pickup Roller	8-04E	21
RF5-1427-000CN	Pickup Roller	8-07	53
RF5-1440-000CN	Left Access Door Struts	8-02	02
RF5-1441-000CN	Diverter Drive Assembly	8-04A	11
RF5-1455-000CN	Tray 1 Separation Pad	8-03	27
RF5-1464-000CN	Plate Shield	8-06	17
RF5-1466-000CN	Formatter Shield	8-06	08
RF5-1484-000CN	Paper Size Guide (Trays 2 and 3)	8-01	not shown
RF5-1609-000CN	Adjustable Size Plate: Back	8-07	67

Part No.	Description	Fig.	Ref.
RF5-1623-000CN	Adjustable Size Plate: Front	8-07	69
RF5-1632-000CN	Front Cover	8-07	02
RG5-1833-040CN	Registration Assembly	8-03	24
RG5-1834-000CN	Feeder Assembly	8-03	23
RG5-1843-000CN	Sensor Cable	8-04D	13
RG5-1844-050CN	DC Controller PCA	8-05	32
RG5-1845-000CN	Paper Size Sensing PCA, Trays 2 and 3	8-06	20
RG5-1846-000CN	Switch / Sensor PCA	8-05	30
RG5-1847-000CN	Main Gear Assembly	8-03	31
RG5-1849-000CN	Fuser Cable 1	8-06	02
RG5-1850-000CN	Fuser Cable 2	8-06	03
RG5-1852-160CN	Paper Input Unit (PIU)	8-03	30
RG5-1859-000CN	Sensor Cable	8-04E	51
RG5-1860-000CN	PIU PCA	8-04E	103
RG5-1861-000CN	Paper Pickup Cable	8-04E	86
RG5-1863-200CN	Fusing Assembly 100-120V	8-03	21A
RG5-1870-000CN	Cover Assembly	8-02	5
RG5-1871-190CN	Fusing Assembly 220-240V	8-03	21B
RG5-1874-000CN	Face-Down Delivery Assembly	8-03	20
RG5-1875-000CN	Face -Up Solenoid Assembly	8-03	22
RG5-1876-000CN	Low Voltage Power Supply, 110-120V	8-06	04A
RG5-1878-000CN	Low Voltage Power Supply, Universal	8-06	04B
RG5-1880-100CN	Tray 1 Pick-up Assembly	8-03	25
RG5-1883-000CN	Tray 1 Door	8-03	28
RG5-1884-000CN	Tray 1 PCA	8-03	55
RG5-1887-000CN	Transfer Roller Assembly	8-03	40
RG5-1888-000CN	High Voltage Power Supply	8-05	31
RG5-1895-000CN	Laser / Scanner Assembly	8-05	06
RG5-1870-000CN	Cover Assembly	8-02	05
RG5-1915-040CN	Right Cover Assembly	8-02	07
RG5-1919-000CN	Main Motor Cable	8-03	15
RG5-1920-000CN	Cassette Size Sensor Cable	8-06	21
RG5-1921-000CN	Fan 3 Cable	8-06	12
RG5-1924-000CN	Cable Assembly	8-02	22

Part No.	Description	Fig.	Ref.
RG5-1924-000CN	Cable Assembly	8-05	18
RG5-1925-000CN	Scanner Motor Cable	8-05	19
RG5-1926-000CN	BD Cable	8-05	20
RG5-1927- 000CN	ILS Cable	8-05	21
RG5-1928-000CN	Registration Cable	8-06	13
RG5-1928-000CN	Connector, 3P	8-06	13B
RG5-2155-000CN	2000-Sheet Input Tray Assembly	8-07	
RG5-2164-030CN	Tray 4 Main Drive Assembly	8-07	50
RG5-2170-000CN	Paper Pick-Up Assembly	8-07	51
RG5-2175-020CN	Vertical Transfer Assembly	8-07	60
RG5-2225-000CN	Paper Sensor PCA	8-08	02
RG5-2226-000CN	Paper Size PCA	8-08	03
RG5-2227-000CN	PSU Cable	8-08	28
RG5-2228-000CN	Main Cable	8-08	29
RG5-2233-000CN	Motor Cable	8-07	31
RG5-2235-000CN	Paper Size Cable	8-08	33
RG5-2236-000CN	Volume Paper Cable	8-08	32
RG5-2281-000CN	DC Power Supply Assembly	8-08	26
RG5-2433-000CN	Front Panel (Control Panel Display)	8-02	19
RG5-2546-000CN	Lifter Sensing Switch (SW31)	8-07	66
RG5-4198-000CN	Paper Deck PCA	8-08	01
RG9-1150-000CN	Diverter Assembly	8-04	A
RG9-1150-000CN	Diverter Assembly	8-02	30
RH7-1260-000CN	Main Motor	8-03	10
RH7-1262-000CN	Pick-Up Motor	8-04E	87
RH7-1266-000CN	Fan 2	8-06	15
RH7-1266-000CN	Fan 1	8-05	16
RH7-1271-000CN	Fan 3	8-06	11
RH7-1289-000CN	Fan 4	8-04B	25
RH7-5119-000CN	Electromagnetic Clutch	8-03	24A
RH7-5120-000CN	Electromagnetic Clutch (Paper Feed)	8-04E	88
RS5-0758-000CN	20T Gear	8-04A	16
RS5-1101-000CN	Conductive Bushing	8-04A	18
RS5-1201-000CN	Paper Reg- Bushing	8-07	62

Part No.	Description	Fig.	Ref.
RS5-1207-020CN	Bushing, Plastic	8-07	65
RS5-2463-000CN	Compression Spring, Front	8-04D	14
RS5-2466-000CN	Compression Spring, Rear	8-04D	16
RS5-2490-000CN	Tension Spring	8-04A	20
RS5-2556-000CN	Spring	8-07	63
RS5-8596-000CN	Label, Operation (Special Order)	8-02	04
RS5-8605-000CN	Paper Size Guide Label (Trays 2 and 3)	8-01	not shown
RS5-8611-000CN	Cassette Size Labels	8-07	30
VD5-0056-301CN	Fuse, LVPS, 110-120V	8-06	05
VD7-0643-151CN	Power Supply Fuse	8-08	27
VD7-0646-301CN	Fuse, LVPS, Universal	8-06	05A
VS1-5057-007CN	Connector, 7P	8-06	13A
WG8-0291-000CN	Photo Interrupter	8-04D	18
WG8-0291-000CN	Photo Interrupter	8-04E	52
WG8-5210-000CN	Paper Reg. Sensor	8-07	64
XA9-0267-000CN	Screw, TP, M3X6 (fixed shoulder)	8-02	CH101
XA9-0267-000CN	Screw, TP, M3X6 (fixed shoulder)	8-03	CH101
XA9-0267-000CN	Screw, TP, M3X6 (fixed shoulder)	8-05	CH101
XA9-0267-000CN	Screw, TP, M3X6 (fixed shoulder)	8-06	CH101
XA9-0547-000CN	Screw, TP, M3X6 (floating flat and lock washer)	8-02	CH102
XA9-0547-000CN	Screw, TP, M3X6 (floating flat and lock washer)	8-03	CH102
XA9-0605-000CN	Screw, tapping, M4X8	8-03	CH114
XA9-0817-000CN	Screw, w/washer, M3X20	8-03	CH105
XA9-0817-000CN	Screw, w/washer, M3X20	8-05	CH105
XB4-7300-809CN	Screw, tapping, truss head, M3X8	8-05	CH106
XB4-7401-009CN	Screw, tapping, pan head, M4X10	8-02	CH107
XB4-7401-009CN	Screw, tapping, pan head, M4X10	8-05	CH107
XB5-7303-007CN	Screw, CT, M3X3	8-05	CH104
XB5-7303-007CN	Screw, CT, M3X3	8-06	CH104
XB6-7300-607CN	Screw, TP, M3X6	8-07	CH110
XB6-7300-607CN	Screw, TP, M3X6	8-08	CH110
XB6-7400-606CN	Screw, TP, M4X6	8-07	CH108
XB6-7400-606CN	Screw, TP, M4X6	8-08	CH108
XB6-7400-607CN	Screw, TP, M4X6	8-07	CH109

B

I/O Information

IEEE 1284 Parallel Cable Information

The IEEE 1284 parallel interface is compatible with Centronics parallel interfaces. To take advantage of its enhanced capabilities such as bi-directional communication between the computer and printer, faster transmission of data, and auto configuration of printer drivers the customer must have:

- Support in software applications for these features.
- A parallel cable with the correct pin configuration (see Figure B-1 on the following page).

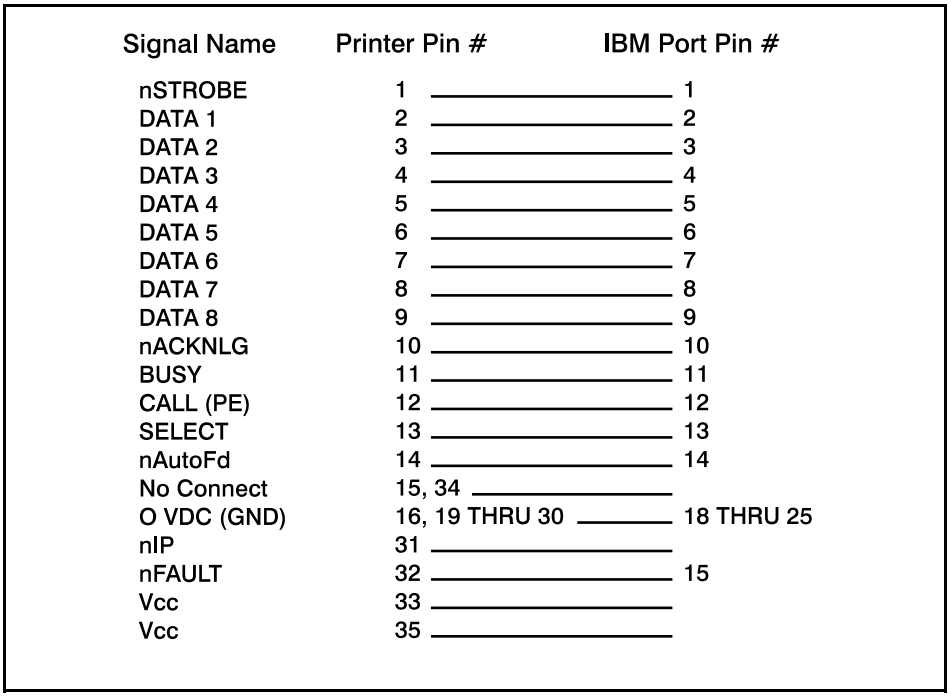
Parallel Cable Pin Configuration

For best results, use the C2951A cable, or equivalent.

Caution

Ensure that all power and interface cables on the printer and host computer are properly grounded in compliance with local codes.

Figure B-1



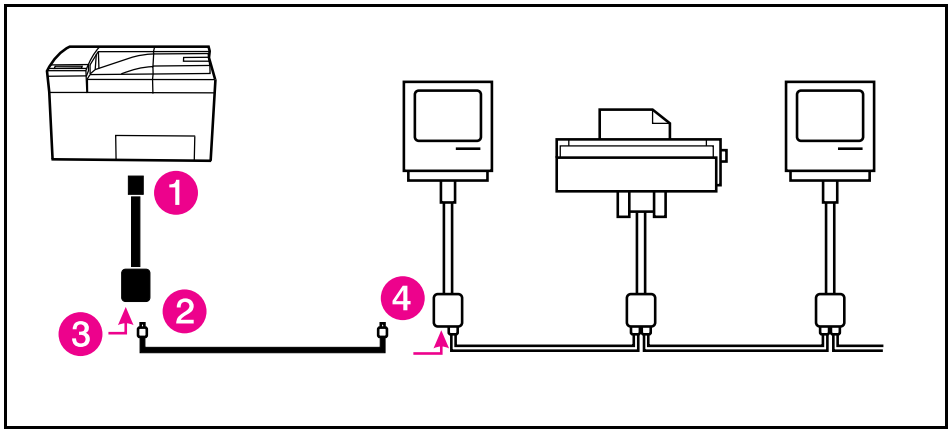
Parallel Cable Pin Assignments (C2951A)

Connecting to LocalTalk Networks

The printer does not come with a LocalTalk network cable. Use a standard LocalTalk network cable and connector kit, such as the HP LocalTalk Network Cable Kit, part number 92215N. You will need one connector kit for each printer on the network, and another for each Macintosh computer on the network.

Connecting to the END of a LocalTalk Network

Figure B-2

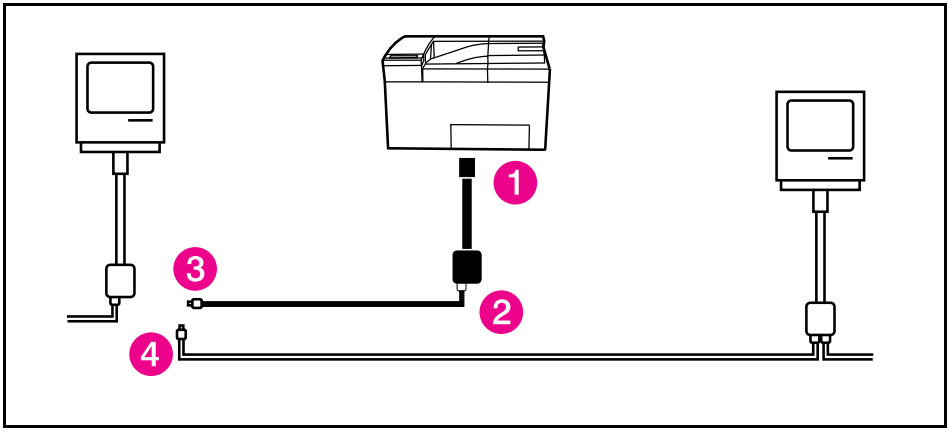


Connecting to the END of a LocalTalk Network

1. Disconnect the printer from its power source. Insert the connector box cable into the LocalTalk port of the printer.
2. Insert one end of the cable into the new connector box.
3. If the connector box is not self-terminating, insert a terminating resistor into the connector box.
4. Insert the other end of the cable into the last connector box on the network. (Remove the terminating resistor if necessary.)
5. Reconnect the printer to its power source.

Connecting to the MIDDLE of a LocalTalk Network

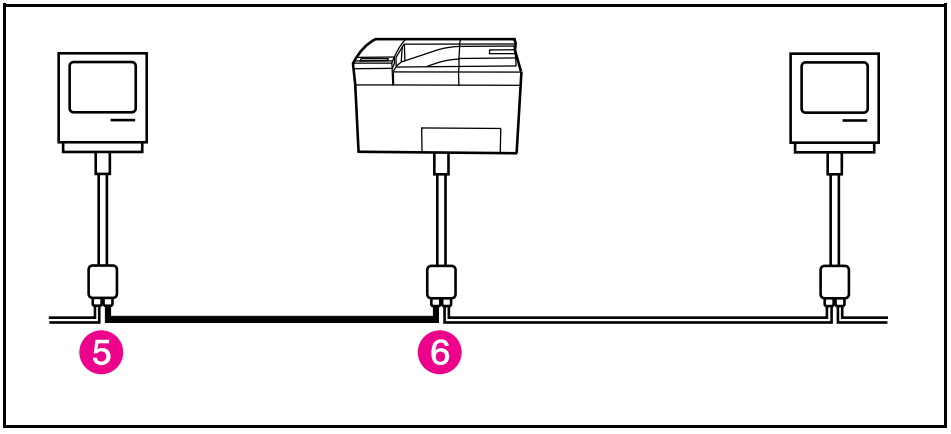
Figure B-3



Connecting to the MIDDLE of a LocalTalk Network (1 of 2)

1 Disconnect the printer from its power source. Insert the new connector box cable into the LocalTalk port of the printer.
2 Insert one end of the new cable into the connector box.
3 Place the other end of the new cable next to a connector box on the network.
4 Unplug one cable from the connector box on the network.

Figure B-4



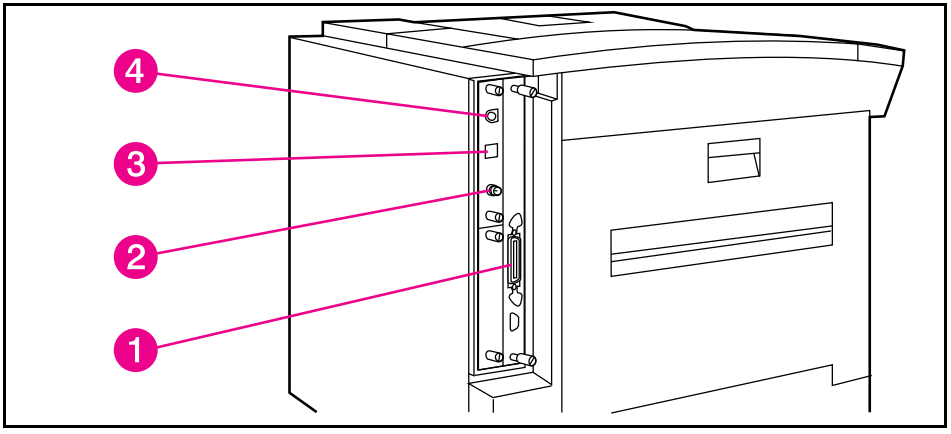
Connecting to the MIDDLE of a LocalTalk Network (2 of 2)

5 Insert the new cable into the connector box on the network.
6 Insert the cable you removed from the network into the new connector box. Then, reconnect the printer to its power source.

Connecting to a Network.

The printer supports up to four different cables: IEEE 1284 parallel, (Figure B-5, callout 1), BNC (ThinLAN) (Figure B-5, callout 2), 10Base-T (RJ-45) (Figure B-5, callout 3), and DIN-8 (LocalTalk) (Figure B-5, callout 4). Select the appropriate interface cable from those shown below for the system and connect the cable or cables to the printer.

Figure B-5



I/O Connector Locations

The cable used to connect the printer to the network, a BNC “T” connector, and a 50 Ohm terminator are not provided with the printer. They must be purchased separately.

Note

You may attach either a ThinLAN cable or a 10Base-T cable, but not both at the same time.

BNC Interface

Attach one section of the ThinLAN cable to one side of the BNC “T” connector. Attach another ThinLAN cable section or a 50 Ohm terminator to the other side. If you are attaching the printer to the end of your network you must connect a 50 Ohm terminator.

10Base-T Interface

Plug the connector of the twisted-pair network cable into the 10Base-T jack (RJ-45) on the HP JetDirect card. The other end of the cable should then be attached to a twisted-pair hub/concentrator.

DIN-8 (LocalTalk) Interface

Plug the end of the DIN-8 cable into the LocalTalk port on the HP JetDirect card.

Note

If you are using only the LocalTalk port, 18 `MIO NOT READY` will appear every time you turn on the printer. This message will automatically disappear after 5 minutes.

Optional Network Configuration.

The following is for HP LaserJet 5Si MX printers only.

Certain network parameters for Novell NetWare, UNIX (HP-UX, Solaris, or SunOS), and EtherTalk networks might need to be set depending upon the network configuration. The following describes the parameters and procedures to set those parameters.

By factory default, all supported network protocols are enabled in the HP LaserJet 5Si MX printer.

Disabling unused protocols will:

- Rid the network of unwanted broadcast messages from the printer.
- Provide better control over who prints to the printer.
- Provide only pertinent information on the self test page.
- Allow the display of warning messages on the printer control panel display to show protocol-specific error conditions. The procedures for disabling the network protocols is found later in this appendix.

Software which allows configuration on the supported networks is included with the printer, except for UNIX (AIX, HP-UX, Solaris, or SunOS) which must be purchased separately.

Network software configuration information for the printer is located in the HP JetDirect Network *Interface Configuration Guide* included with the HP LaserJet 5Si MX printer.

To Enter the MIO Menu:

1. Press [On Line] to take the printer offline.
2. Press [Menu] until `MIO MENU` appears.
3. Press [Item] until `CFG NETWORK=NO *` appears.
4. Press [+] until `CFG NETWORK=YES` appears.
5. Press [Select]. `CFG NETWORK=YES *` appears.

Configuring Novell NetWare Frame Type Parameters.

Normally selecting a NetWare frame type is not required. The HP JetDirect card automatically selects a NetWare frame type, and only when this selection is incorrect do you have to set the NetWare frame type through the HP LaserJet 5Si MX control panel. The NetWare frame type is displayed on the self test page.

To manually configure Novell NetWare parameters:

1 Press [Item] until CFG NOVELL=NO * appears.
2 Press [+] until CFG NOVELL=YES * appears.
3 Press [Select]. CFG NOVELL=YES * appears.
4 Press [Item]. FRAME=AUTO * appears.
5 To configure the Novell NetWare protocol, Press [+] to select one of these frame types:

Table B-1 Novell NetWare Frame Types on an HP JetDirect Ethernet Card

Frame Type	Description
AUTO (default)	All listed Novell frame types will be allowed.
EN_8023	Limit frame types to IPX over IEEE 802.3 frames. All others will be counted and discarded.
EN_II	Limit frame types to IPX over Ethernet II frames. All others will be counted and discarded.
EN_8022	Limit frame types to IPX over IEEE 802.2 frames. All others will be counted and discarded.
EN_SNAP	Limit frame types to IPX over SNAP with Ethernet frames. All others will be counted and discarded.

6 Press [Select] to save the selection. An asterisk * appears.
7 If other protocols will be used, continue with the next section. Otherwise, skip to “Disable Network Protocols” at the end of this appendix.

Configuring TCP/IP Parameters

The HP JetAdmin utility for UNIX (sold separately) may be used to configure TCP/IP parameters. If you do not have the HP JetAdmin utility for UNIX, or you are using a UNIX system other than HP-UX, Solaris, or SunOS, you may use the control panel of the printer to configure these TCP/IP parameters manually:

- Usage of the bootp file for configuration parameters (the default is to use the bootp file) IP address (4 bytes)
- Subnet mask (4 bytes)
- Syslog server IP address (4 bytes)
- Default gateway (4 bytes)
  TCP connection timeout (in seconds)

To manually configure TCP/IP parameters:

1. Press [Item]. CFG TCP/IP=NO * appears.
2. Press [+]. CFG TCP/IP=YES appears.
3. Press [Select]. CFG TCP/IP=YES * appears.
4. Press [Item] to manually configure TCP.IP parameters. BOOTP=YES * appears. If you keep BOOTP=YES *, then the values for the TCP/IP parameters will be provided by the bootp file, no other TCP/IP configuring is necessary.
5. Press [+] to change the value of the BOOTP=parameter. BOOTP = NO appears.
6. Press [Select] to save the selection. BOOTP=NO * appears. If you selected BOOTP=NO *, then you will be prompted to configure each of the TCP/IP parameters.
7. Press [Item] to continue configuring.*** IP BYTE 1 = ALUE * *** appears.
8. Press [+] until the value of the first byte of the IP address appears on the control panel display. Note that if you Press and hold [+] , the value will scroll rapidly.
9. Press [Select] to save the value.
10. Press [Item] to continue. Repeat steps 8 and 9 to configure the remaining bytes of the IP address.
11. Repeat steps 8 through 10 to configure the subnet mask bytes (SM), syslog server IP address (LG), default gateway (GW), and timeout (TIMEOUT).
12. If no other protocol is enabled, Press [On Line]. After completing this guide refer to the HP JetDirect Network Interface Configuration Guide for configuration instructions.

Configuring Apple EtherTalk Phase Parameter

To configure EtherTalk parameters:

1. If you do not want to configure the phase parameter, Press [On Line].
2. Press [Item]. CFG ETALK=NO * appears.
3. Press [+]. CFG ETALK=YES appears.
4. Press [Select]. CFG ETALK=YES * appears.
5. Press [Item]. Phase=2 * appears.
6. Press [+] to change the phase parameter. Phase=1 appears.
7. Press [Select] to save the new value. Phase=1 * appears.
8. Press [On Line]. You may want to configure the AppleTalk name and assign a preferred EtherTalk Zone.
9. After completing this guide refer to the HP JetDirect Interface Configuration Guide for further configuration instructions on using the HP LaserJet Utility.

Disable Network Protocols (Optional).

1. Press [On Line] to take the printer offline.
2. Press [Menu] repeatedly until MIO MENU appears.
3. Press [Item]. CFG NETWORK=NO * appears.
4. Press [+]. CFG NETWORK=YES * appears.
5. Press [Select]. CFG NETWORK YES * appears.
6. Press [Item] to scroll through each network protocol. NOVELL=ON * appears.

To Disable Novell NetWare:

1. Press [+] to change to NOVELL=OFF.
2. Press [Select] to save the new status. NOVELL=OFF * appears.
3. Press [Item] to continue configuring. DLC/LLC=ON * appears.

To Disable DLC/LLC:

1. Press [+] to change to DLC/LLC.
2. Press [Select] to save the new status. DLC/LLC * appears.
3. Press [Item] to continue configuring. TCP/IP=ON * appears.

To Disable TCP/IP:

1. Press [+] to change to TCP/IP=OFF.
2. Press [Select] to save the new status. TCP/IP=OFF * appears.
3. Press [Item] to continue configuring. ATALK=ON * appears.

To Disable Apple EtherTalk and LocalTalk:

1. Press [+] to change to ATALK=OFF.
2. Press [Select] to save the new status. ATALK=OFF * appears.
3. Press [Item] to continue configuring.

Regulatory Information

Laser Safety (U.S.A.)

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This printer is certified as a “Class 1” laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

WARNING! Use of the controls, adjustments, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Laser Statement (Finland)

The following applies to printer operation and servicing in Finland.

LASERTURVALLISUUS

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

HP LaserJet(s) 5Si, 5Si MX, and 5Si Mopier laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käyt"ssä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.

Kirjoittimen on hyväksynyt Suomessa laserturvallisuuden osalta Sähk"tarkastuskeskus. Laitteen turvallisuusluokka on määritetty valtioneuvoston päät"ksen N:o 472/1985 ja standardin EN 60825 (1991) mukaisesti.

VAROITUS ! Laitteen käyttäminen muulla kuin käytt"ohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymätt"mälle lasersäteilylle.

VARNING ! Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas f"r osynlig laserstrålning, som “verskrider gränsen f”r laserklass 1.

HUOLTO HP LaserJet(s) 5Si, 5Si MX, and 5Si Mopier kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkil". Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoisty"kaluja.

VARO ! Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymätt"mälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

VARNING ! Om laserprinterns skyddsh"lje “ppnas då apparaten är i funktion, utsättas användaren f”r osynlig laserstrålning. Betrakta ej strålen.

Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:

Aallonpituus 777,795 nm
Teho 5 mW
Luokan 3B laser

Toner Safety

Note In case of toner spills, skin and clothing are best cleaned by removing as much toner as possible with a dry tissue, then washing with cold water. Hot water causes toner to permanently set into clothing.

MSDS Information

A Material Safety Data Sheet (MSDS) for toner or any other chemical used in the printer is available through Hewlett-Packard's Customer Information Center by either mail or fax.

By mail:

To obtain an MSDS for the HP C3909A toner cartridges through the mail, call the Customer Information Center (CIC) at 1-800-752-0900 (U.S. Only) between 6 A.M. and 5 P.M. Pacific Standard Time.

By fax:

To obtain an MSDS for the HP C3909A toner cartridges by fax, call HP ASAP (Automated Support Access Program) at 1-800-333-1917 (U.S. Only) and follow the instructions for using the HP FIRST fax service.

Note See "Technical Assistance" in chapter one for more information on the HP FIRST service.

Ozone Emission

These printers do not use high voltage corona wires in the electrophotographic process, and therefore generate no measurable ozone gas (O_3). The printers instead use charging rollers in the toner cartridge and in the print engine.

FCC Regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

There is, however, no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician.

Note

Any changes or modifications not expressly approved by HP could void the user's authority to operate this equipment. Use of a shielded interface cable is required to comply within the Class B limits of Part 15 of FCC rules.

VCCI Statement (Japan)

The VCCI statement below is required in Japan. It is similar to the FCC regulatory statement.

Figure C-1

この装置は，第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。

しかし，本装置をラジオ，テレビジョン受信機に近接してご使用になると，受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

VCCI Statement (Japan)

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard Boise, Idaho 83714-1021, USA

declares that the product

Product Name:	HP LaserJet 5Si//5Si MX* printers and 5Si Mopier*
Model Number:	C3166A / C3167A* / C4076A* / C4077A*
Product Options:	All

conforms to the following Product Specifications:

Safety: IEC 950:1991+A1 / EN 60950:1992
IEC 825-1:1993 / EN 60825-1 + A1:1990 laser class 1

EMC: CISPR-22:1985 / EN 55022:1988 class B[1]
CISPR-22:1985 / EN 55022:1988 class A*
EN 50082-1:1992
IEC 801-2:1991 / prEN55024-2:1992 - 3 kV CD, 8 kV AD
IEC 801-3:1984 / prEN55024-3:1991 - 3 V/m
IEC 801-4:1988 / prEN55024-4:1992 - 0.5 kV Signal Lines, 1 kV Power Lines

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE marking accordingly.

[1] The product was tested in a typical configuration with Hewlett-Packard Personal Computer and Test Systems.
* This printer contains Local Area Network (LAN) options. When the interface cable is attached to either of the IEEE 802.3 connectors, the printer meets the requirements of EN55022 Class A.

Office of Quality Manager
Boise, Idaho USA
August 1, 1995

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department ZQ / Standards Europe, Herrenberger Straße 130, D-7030 B"blingen (FAX: + 49-7031-14-3143)

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